# Pick and Place Machine User Manual SMT380



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# **Introduction**

Thank you for using this product. This operation manual provides relevant information such as SMT380 placement machine equipment parameters and operation instructions.

#### ! Attention:

1. It is strictly prohibited to copy part of or the entire book (including software and programs) without authorization.

2. The contents of this book can be modified without prior notice.

3. We strive to be accurate in the preparation of the contents of this book. If you find a mistake, omission or suspicious part, please contact the dealer or the company.

4. The company is not responsible for the results of the error operation, whether it is related to the item (3) or not. Please understand.

#### ! Attention: For safe use of the machine!

The operator of the chip mounter (hereinafter referred to as the machine), maintenance personnel and repair personnel shall carefully read the following safety precautions before using the machine, so as not to get hurt.

#### 1. Basic precautions

(1) The operation of the machine is only limited to the operator who has mastered the operation of the machine.

(2) Please do not use this machine for other purposes. Otherwise, the company is not responsible for the resulting responsibility.

(3) Do not modify the machine. The company is not responsible for the accident caused after unauthorized modification.

(4) In order to prevent accident caused by unexpected start-up, please cut off the power supply before carrying out the maintenance, repair and cleaning.

(5) When unplugging the power plug, please hold the plug body instead of the wire and pull out.

#### 2. Precautions for application

(1) Please take the necessary safety actions during transportation to prevent inversion or falling.

(2) Please take care of the equipment for shipment.

(3) Please put the machine in a stable place for installation.

(4) In order to prevent personal accident, before switching on the power supply, please confirm that the cable is not damaged, shedding, loose, etc.

(5) In order to prevent personal accident, before switching on the power supply, please confirm that the machine is safely grounded.

(6) In order to prevent accidents caused by unskilled operation, the repair and commissioning work shall be carried out by skilled

technicians. When changing the components, please use the company's genuine parts. The company is not responsible for the accident caused by the use of non-genuine parts.

(7) In order to prevent the electric shock caused by unskilled operation, electrical repairing shall be entrusted to the professional staff.

(8) In order to prevent human injury, after repair, adjustment or spare parts replacement, please confirm that the screws and nuts are not loose.

#### 3. Precautions for working environment

(1) Do not use the machine under the environment of high frequency welding machine and other noise sources (electromagnetic wave).

(2) Do not use the machine when the power voltage exceeds 10% of the rated voltage.

(3) When it thunders, stop using the machine and cut off the power.

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|---|---------|----|
|   |         | •  |

| Chapter 1 Prepare Work Before Use | 1  |
|-----------------------------------|----|
| Chapter 2 Equipment Summary       | 4  |
| 2-1 Equipment Constitute          | 4  |
| 2-2 X, Y, Z, A Axis Explanation   | 5  |
| 2-3 File Type                     | 5  |
| 2-4 Device Parameters             | 6  |
| 2-5 Nozzle                        | 7  |
| 2-6 Substrate Limitation          | 7  |
| 2-7 Menu Composition              |    |
| Chapter 3 System Setting          | 9  |
| 3-1 Speed Setting                 | 9  |
| 3-2 Nozzle Calibration            | 9  |
| 3-3 System Setting                | 12 |
| Chapter 4 System Edit             | 13 |
| 4-1 How to edit PCB               | 13 |
| 4-2 How to edit file              | 14 |
| 4-3 Mark Edit                     |    |
| 4-4 Feeder Edit                   |    |
| Chapter 5 Production & Placement  |    |
| 5-1 How to import program         |    |
| 5-2 Production & Placement        |    |
| 5-3 Feed Production               |    |
| 5-4 End & Turn off the Machine    |    |
| Chapter 6 Maintenance             |    |
| 6-1 Daily Maintenance             |    |
| 6-2 Weekly Regular Maintenance    |    |
| 6-3 Monthly Regular Maintenance   |    |
| 6-4 Nozzle Clean                  |    |
| Chapter 7 Trouble Shooting        | 39 |
| 7-1 Throw                         |    |
| 7-2 Suction                       |    |
| 7-3 X/Y axis                      |    |
| 7-4 Placement                     |    |
| 7-5 MARK Point                    | 40 |
| 7-6 Power Supply                  |    |
| Chapter 8 After Sales Service     | 41 |

#### **Chapter 1 Prepare Work Before Use**

1.Open the wooden box, take out the machine and accessories according to packing list and check whether all parts are in good condition. If you have any further question, please contact us. After-sale Service Hot Line: 400-692-6668.

| No. | Name                        | Specification   | Unit   | Qty |
|-----|-----------------------------|---|--------|-----|
| 1   | Mounter Host                | SMT380  | Set    | 1   |
| 2   | Display Dell                | Dell 18.5 "   | Set    | 1   |
| 3   | Display VGA Cable           | 1.5m  | PC     | 1   |
| 4   | Keyboard and Mouse Set      |   | РС     | 1   |
| 5   | Nozzle                      | 502×1、503×2、504×2、505×1、506×1                           | РС     | 1   |
| 6   | Nozzle Correction Substrate | Stainless Steel Substrate                               | РС     | 1   |
| 7   | Magnet                      | Round   | РС     | 4   |
| 8   | Check the Nozzle            | Solid Corrected Nozzle                                  | РС     | 4   |
| 9   | Inkpad                      | Red   | РС     | 1   |
| 10  | Power Cord                  | 3×1.5 m <sup>2</sup>                                    | РС     | 1   |
| 11  | Toolbox                     | 12.5 "  | PC     | 1   |
| 12  | Grease                      | Kunlun No.2 White                                       | Bottle | 1   |
| 13  | Allen Key                   | 8 Piece Suit  | PC     | 1   |
| 14  | Brush                       | 1.5 "   | РС     | 1   |
| 15  | Stainless Steel Tweezers    | VETUS-Anti-Static Precision Stainless Steel<br>Tweezers | РС     | 1   |
| 16  | Sealing Ring                | φ10×φ6×2.5  | РС     | 5   |
| 17  | 0 Type Circle               | φ5×1  | РС     | 10  |
| 18  | Certificate of Inspection   |   | РС     | 1   |
| 19  | Operation Manual            |   | РС     | 1   |

2. The equipment must be placed on a flat, strong desktop, and ensure the level of four feet adjustment.

3.Put the monitor, mouse, keyboard placed on the right side of the host.





4. Connect the monitor, mouse, and keyboard to the industrial computer: connect the monitor VGA cable and USB mouse and keyboard to the industrial computer as shown below.



#### Fig. 1-2 display connection

5.Connect the main power and monitor power: Connect one end of the power cord to the power connector of the device. Connect the plug to the socket at the other end and connect the monitor power plug to the built-in power socket of the device as shown below.



Fig. 1-3 Power socket

Fig. 1-4 Pipe connector

6. Connect the air source: insert the external air pipe into the air inlet on the rear side of the device as shown.



Fig.1-5 Air pressure adjust



- 7. Adjust the pressure: pull up the gas source processing part knob to adjust the air pressure to 0.6Mpa as shown.
- 8. Turn on the main power switch: turn 90 degrees clockwise to turn on the main power supply.

9. boot test: double-click the computer desktop application shortcut icon to enter the placement machine control system to detect whether the display, mouse, keyboard and other components are working properly.

10.Equipment and Material Preparation:

|   | Software and Material | Use and Tips  |
|---|-----------------------|---|
| 1 | PCB Design Software   | PROTEL, DXP Etc. (Download online and install to the machine) |
| 2 | PCB Source File       | Convert to the mount coordinate file with Design Software     |
|   |                       | (Can directly edit the Source File on the computer)           |
| 3 | PCB                   | Prepare PCB(Without solder paste) for production              |
| 4 | Component             | Components for mounting (Resistors., CAP., IC, etc)           |
| 5 | Double-sided Tape     | For trial   |
| 6 | Solder Paste Mixer    | Stir well (increase activity, eliminate bubbles)              |
| 7 | Solder Paste Printer  | Print solder paste onto the PCB                               |
| 8 | Scraper               | Used with mixer and Printer                                   |
| 9 | Reflow Oven           | For Welding   |

# **Chapter2 Equipment Summary**

# 2-1 Equipment Constitute



Fig. 2-1 Host View

Fig. 2-2 Host Side View

| 1Y-axis stepper servo motor | 2X-axis stepper servo motor | 3IC tray placement area     | 4four-head high-speed camera |
|-----------------------------|-----------------------------|-----------------------------|------------------------------|
| 5Pitching box               | 6fFeeder mounting plate     | 7Y-axis driving timing belt | 8Working table               |
| 9PCB board clamping device  | 10emergency stop switch     | 11one button start button   | 12head part                  |
| 13Large-size camera         | 14X-axis linear guide       | 15X-axis drive timing belt  | 16Y-axis linear guide        |
| 17-Industrial Computer      | 18-Power Switch             | 19Chassis                   |                              |



1--Rubber Mats2--Power Cord Socket3--Power Socket4--Air source inlet5--Drainage port6--MARK point camera7--Air source processor8--Heat vent9--Intake hole10--Feeder anti-lifting photoelectric switch5--Description



Fig. 2-7 Machine head front view

Fig. 2-8 Machine head left view

| 1Z-axis Detection Photoelectric | 2Swing Bar Assembly            | 3Engineering Towline              |
|---------------------------------|--------------------------------|-----------------------------------|
| 4Rotary Stepper Motor           | 5Rotary Sealed Copper Bushing  | 6-Vacuum Switching Solenoid Valve |
| 7Vacuum Generator               | 8Z Axis Up and Down Motor      | 9Reset Spring                     |
| 10MARK Camera                   | 11MARK Camera LED Light Source | 12Z-Axis Slide                    |

# 2-2 X, Y, Z, A Axis Explanation

The machine has 4 axes for numerical control (X, Y, Z, A)

1, X, Y:

X: Left-right directionY: Up and down directionUnit:0.01mmDisplayed as: X=000.00mm, Y=000.00MM.2、Z axis: Height, Unit:0.01mm, Displayed as :Z=00.0mm;

21 Z axis: Theight, Onit.0.0111111, Displayed as .Z=00.011111;

3. A axis: Rotation angle of mount head, Unit:0.1°,

Displayed as=00.0, Counter clockwise as positive value.

#### 2-3 File Type

- 1. Coordinate File (.CSV)
  - a. CSV coordinate file:1. converted and output by PCB source file via DXP and other software 2.Use FlyerSMTLi edit online.
    - b. The file contains: NO.; Name; Type; Coordinate; Angle; Value

c. CSV files can be directly modified and saved with Excel.

- 2 Production File(.H9Prj)
  - a. Formal production file edited via FlyerSMTLi.
  - b. The file contains: CSV coordinate ; PCB ; Feeder ; Setting.
  - c. Edit and use by FlyerSMTLi only.

# 2-4 Device Parameters

| System      | Project                     | Content                                      |
|-------------|-----------------------------|--|
| -           | Mounting Numbers            | 4 PCS  |
|             | Mounting Precision          | 0.025 mm                                     |
|             | Mounding Angle              | 0~360°                                       |
|             | Theoretical Speed           | 7500 PCS/h                                   |
| Mounting    | Normal Mounting             | 6000 PCS/h                                   |
| System      | Visual Mounting             | 5000 PCS/h                                   |
|             | Suction Nozzle Type         | Juki Series Nozzle                           |
|             |                             | RC (0402, 0603, 0805, 1206 etc)              |
|             | Applicable Element          | LED Lamp Beads (0603, 0805, 3014, 5050 etc.) |
|             |                             | Chip (SOT, SOP, QFN, BGA etc)                |
|             | PCB Minimal Size            | <5.5 mm                                      |
| DCD         | PCB Maximum Size            | 10×10 mm                                     |
| PCB         | PCB Thickness               | 350×450 mm                                   |
|             | PCB Warping Allowable Value | ≤2 mm  |
|             | Туре                        | YAMAHA CL Materials Feeder                   |
|             | Feeder                      | 8mm 12mm 16mm 24mm 32mm                      |
| Feeder Tank | Numbers                     | 38 level                                     |
|             | Tubular Materials Feeder    | YAMAHA YV materials feeder                   |
|             | IC Tray                     | Postposition 1 PC Tray                       |
| V/V/7 Avia  | X/Y Axis Moving Range       | 655×575 mm                                   |
| A/ 1/Z AXIS | Z Axis Moving Range         | 12 mm  |
|             | A Visual Camera             | CCD High-Definition Camera                   |
| Visual      | Numbers of Visual           | 6PCS(parts camera, PCB camera, High Speed    |
| System      |                             | Identification*4)                            |
|             | Recognition Capability      | MAX.22*22mm                                  |
|             | PC System                   | MicrosoftWIN7                                |
| Control     | Operational Software        | Researching and Development Independently    |
| System      | Compatible File Format      | CSV, TXT.format                              |
|             | Program Method              | Support online and offline ways              |
|             | Air Pressure                | 0.8 Mpa                                      |
|             | Vacuum Mode                 | Vacuum Generator                             |
|             | Air Pressure                | -80 kpa                                      |
| Parameter   | Power                       | 500W   |
|             | Power Supply                | AC220V±10% 50Hz                              |
|             | Outline Size                | $L 1185 \times W 840 \times H 560 mm$        |
| ļ Ē         | Net Weight                  | 123kg  |

| NO. | Outer Diameter | Inner Diameter | Shape | Application  |
|-----|----------------|----------------|-------|--|
| 502 | Φ0.7mm         | Φ0.4mm         |       | 0402   |
| 503 | Φ1.0mm         | Φ0.6mm         | Ţ     | 0402、0603 etc. (Equivalent Size)                   |
| 504 | Φ1.5mm         | Φ1.0mm         | Ţ     | 0805、1206、1210、SOT23 etc.<br>(Equivalent Size)     |
| 505 | Φ3.5mm         | Φ1.7mm         |       | SOP8、SOP14、1812、2220、QFN etc.<br>(Equivalent Size) |
| 506 | Φ5.0mm         | Φ3.2mm         |       | QFN、TQFP、BGA、or ≤22mm                              |

# 2-6 Substrate Limitation

2-5 Nozzle



Fig. 2-9 Substrate Limitation



Fig. 2-10 Basic Manual

|                               | ECODE: 1 Image ETOPSTOP      |
|-------------------------------|------------------------------|
| FluerSWII 12 0                |                              |
| Edit Menu                     |                              |
| C Bdit                        |                              |
| ()) Setting                   |                              |
| Admin .                       |                              |
| <b>X</b> Brit                 |                              |
|                               | Preview camera I Static      |
| PAUSE                         | Line Color                   |
| TOPSTOP                       | 🖾 Auto Loadin:               |
| STEP                          |                              |
| ·                             | Work message ><              |
|                               | This time use:0Sec           |
| DX:0.000 DY:0.000 X 0 Y 0 Z 0 | File:331.H9 2019-11-13 13:23 |

Fig. 2-11 Edit Menu



Fig. 2-12 Setting Menu



Fig. 2-13 Coordinate Edit

#### **Chapter3 System Setting**

# 3-1 Speed Setting



Fig.3-1 Speed Setting

Step: 1.Setting 2. Speed 3. Adjust the speed (Higher value, Higher Speed). Attention: Adjust the Z axis speed in the feeder edit.

#### **3-2 Nozzle Calibration**

#### **Tool Preparation:**

| NO | Name                                   | Qty | Attention    |
|----|--|-----|--------------|
| 1  | Correction Substrate (Stainless Steel) | 1   |              |
| 2  | Round Magnet                           | 4   |              |
| 3  | Inkpad                                 | 1   | With Machine |
| 4  | Nozzle                                 | 6   |              |
| 5  | Solid Nozzle                           | 6   |              |
| 6  | Paper (A5)                             | 1   | Self-Match   |

#### **3-2-1 Nozzle Calibration and PCB Camera Offset**



Fig.3-2 Inkpad Location

- 1.Fix the 4 round magnets on the calibration substrate with paper(A4)
- 2.Adjust the width of guide rail ≥correction substrate, place the substrate on the left side of the guide plate and click"Load"to send the substrate to the mount position and clamp it.
- 3.Place the inkpad as the picture shows.

| Nozzle  |  |
|---|--|
| 1#         2#         3#         4#         5#         6#           INozzle         Vacc test         Model 500         •           Offset         Rotate |  |
| X     -62.373     Cal Point     Cal HS Camera     Lock       Y     45.05     Cal HD Camera     Lock       Component camera     Pick Holding     MS        |  |
| Y -673.88   |  |

Fig.3-3 Nozzle Calibration





Fig.3-5 Mark Point

4.Click "Nozzle Correction-PCB Camera", stamp 4 nozzles to the inkpad center from 4 different angles and then move them to the paper to repeat the mark point.

|             |                                       | ECODE: 章 原程上        | t storstop         |
|-------------|---------------------------------------|---------------------|--------------------|
|             | Speed Nozzle System                   |                     |                    |
| Product     | Nozzle                                |                     | $\mathbf{\lambda}$ |
| Edit        | Cal Norzle-FCB Camera                 |                     |                    |
| JOJ Setting | 1 to a condinates                     |                     | 1                  |
|             | I III III III III III III III III III | 96.732              |                    |
| Admin       | Nozzle Vacc test A 0.0                | X0.000 Y0.000       |                    |
| Exit        | Offset 3 Goto                         | ▲+ A-               |                    |
|             | X -62.373 Cal Point                   |                     |                    |
| RIM         | ¥ 45.05 2.                            | Static QQZoom       | Capture            |
|             | Component camera x- L x+              | + 4 Dynamic         |                    |
| PAUSE       | χ 315.195                             |                     |                    |
| STOP        | у -674. 214                           | Cancel inf          | _                  |
|             |                                       | CB Lock PCB Widen   |                    |
| STEP        | OK KCancel                            | -Out PCB UnLock PCB | 1                  |
|             |                                       | Work message        |                    |
|             |                                       | ×                   |                    |
| Reset       | DX:0.000 DY:0.000 X 0 Y 0 7 0         | This time use:0Sec  | 2019-5-22 15:45    |
|             |                                       | / File:flyerPC.H9   | 2019-5-22 15:45    |

Fig. 3-6 Coordinate Correction

5.Select the nozzle(need correct), click "Cal Point" to edit, Click "goto" to position the camera to the mark point, adjust the coordinate is aligned with the mark point center, click "OK" to complete the nozzle correction.

6.Refer to step 5 to complete the other nozzles calibration one by one.

3-2-2 Nozzle Calibration and HD Camera Offset

| Nozzle   | x |
|--|---|
| Cal Norzle-FCB Canera  1# 3# 4# 5# 6#                                |   |
| Nozzle Vacc test Mode: 500 -   |   |
| Offset<br>X -62.373 Cal Point<br>Z Cal HS Camera Lock 3<br>X 45.05   |   |
| Component camera Pick Holding 0 MS<br>X 317.434 Placing Holding 0 MS |   |
| ү -673.88  |   |
| OK Cancel  |   |

Fig.3-7 HD Camera Correction





#### Fig.3-9 Correct Result

1. Install 4 solid nozzle (Random delivered), select the nozzle(need corrected); click "HD Camera Calibration", then nozzle starts to automatically calibrate. Then, click "View" to confirm the coordinate is aligned with the center of the nozzle. If failed, calibrate it again in the same way.

2. Refer to step 1 to complete other nozzle correction one by one.

#### 3-2-3 Nozzle Calibration and High Speed Camera Offset





Fig.3-11 Calibration Process

1. Select the nozzle(need calibration), click "High Speed Camera", nozzle starts to automatically correct. After finished, click "View" to confirm the coordinates are aligned with the nozzle center. If still offset, calibrate it again in the same way.



Fig.3-12 Calibration Result

2. Refer to step 1 to complete other nozzle correction one by one.

#### 3-3 System Setting

#### **1.** Language: Chinese $\leftrightarrow$ English

Select the desired language, click "Confirm" to save the data, exit the software and then log in again to switch languages.

#### 2. Mount Mode

Running type: The placement mode is completed one by one in the order of the components of the production file.

#### 3. Throw Coordinate

The machine supports the position modification. First, place the throwing box on the work table behind the rail, then click "scraping coordinate" to move the head to the top of the box to save the data(Subject to the watch nozzle above the box).

#### 4. Throw Time

Delay time setting, subject to factory setting (50ms), advice: Don't modify the data privately.

#### 5. Automatic reset

If you active this function, when times of mounting reached target number, device will be reset automatically to ensure the accuracy of the data. According to the number of setting required for production to save date.

#### 6. Conveyor Delay

In order to match the speed of the transfer board, set the delay time of the stop board. When the PCB board reaches the position of the baffle cylinder, the baffle cylinder is retracted after the delay time is counted to prevent the PCB board from overshooting and causing the position to stop.

#### 7. Conveyor Speed

Set the speed of loading and unloading of PCB

#### 8. Conveyor Speed

Since the board detection sensor is not in the same vertical position as the damper cylinder, it is necessary to set the board delay time to ensure that the PCB board can reach the damper cylinder position.

#### 9. Open Lid(Cover Status)

Open cover and suspend: if the front and rear cover is opened during the operation of the device, the device will immediately switch to the suspended state.

If the cover is opened during operation, the device will immediately switch to the low-speed operation mode.

#### 10. Use of Guide Rail

SMT:Switch to the pick and place mode to meet the mounter's three-stage transfer plate mounting requirements.

Inspection conveyor: Switch to the conveyor mode and use the mounter as the convyor (select this mode when multiple devices online backend devices are not mounted).

### **Chapter 4 System Edit**

#### Process



#### **Preparation:**

Turn on the machine and connect to the air source, take another PCB to be produced, adjust the width of the rail (depends on PCB size), and then place the PCB at the front end (left side) of the rail, and click "Load" to transport the PCB to the mounting area and clamped.

#### 4-1 How to edit PCB

#### 4-1-1 How to edit origin



Fig.4-1 Origin Edit

Select" Edit—PCB" to enter the PCB management interface.

Double-click X/Y content to edit coordinate, locate camera center to the PCB origin position, and click "Confirm" to save it.

#### ! Attention:

Origin subject to the setting when the PC component is exported.

Origin usually be set in the bottom left corner. Consider cut of the edge accuracy of PCB is not as required, it is recommended to select the lower left corner insert via, and the MARK or lower left corner component pad is more suitable for the origin.

#### 4-1-2Mutiple Board

Enter the PCB, click "Add" or "Reduce" to add the number of boards.

Select the multi-board, double-click X/Y to move the camera cross to the origin, and click "Confirm" to save it.

Board needs to be done, just " $\sqrt{}$ " under "ON" column.

#### 4-1-3 Multi-Board Form









Fig.4-3 Edit Space



For the arrangement of multiple board for quick edit.

1. After origin is completed, click "Sort" to edit the parameter.

2.Edit the number of board in X and Y axis

3. Click "Get Spacing and Angle" and then move the coordinate alignment in order according to the prompt

4.the origin of left lower corner of the multi-board;

5.the origin of the lower right corner of the multi-board;

6.the origin of the upper left corner of the multi-board.

Then click "Save" to generate collating coordinates automatically.

#### ! Attention:

A few board have flipped 90° or other angles , import angle values in the "Flip A" item.

# 4-2 How to edit file

# ! Attention:

If you have a PCB original file, you only need to export the CSV coordinate file and import it into the placement machine. You do not need to edit the placement coordinates of the component. (See 4-2-1, 4-2-2 for details)

If there is no PCB origin file, only the component coordinates can be added by the placement machine. (See 4-2-3 for details)

4-2-1 Convert PCB origin files to CSV coordinate files



#### Fig.4-5 Program Import

1.Program Import: Run DXP (Altium Designer ), Import the PCB origin files.



#### Fig.4-6 Origin Setting



#### Fig.4-7/8 Origin Setting

**2.Origin Setting:** Click"Edit—Origin—Setting", Align the lower left corner insert via, MARK or lower left corner component pad as the origin.

# ! Attention:

Origin usually be set in the bottom left corner. Consider cut of the edge accuracy of PCB is not as required, it is recommended to select the lower left corner insert via, and the MARK or lower left corner component pad is more suitable for the origin.

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| Top Layon Layon (     Bottom Layon (     Bottom Layon (     Bottom Layon (     Bottom Contex)     Bottom Poste (       Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bottom Poste (     Bo         |                           |                              |
| 194 Swn Gidd Trm   |                           | 2×7 #####                    |
|  | System                    | eter 5 0 . 0                 |
|  |                           |                              |

Fig.4-9 Output Coordinate File

3.Output File: Click on "Files - assembly output - Generates pick and place files" to output the coordinate file.



Fig.4-10 Select output format

Select Format: CSV. Unit: Metric, click "OK" to generate a CSV coordinate file. The output file is saved in the same folder as the PCB origin file by default.

#### 4-2-2 How to import file





1. Install the nozzle: Select the appropriate nozzle to install on the patch head according to the quantity of the material.

2. set the nozzle: according to the installed nozzle click "set - nozzle" to select the corresponding nozzle model

|               |                  |                   | 2                 |  |                                  |                            |                                       |                  |                          |                    | ECODE :                 | ‡ Imag             | e STOP STOP     |
|---------------|------------------|-------------------|-------------------|--|----------------------------------|----------------------------|---------------------------------------|------------------|--------------------------|--------------------|-------------------------|--------------------|-----------------|
| lyerSMTLiV2.0 |                  | PCB               | cs <b>v</b> Fi    | le 😽                                     | Mark                             | ()                         | eeder                                 | 1 Opt            | imizatio                 | Save               |                         |                    |                 |
| P oduct       | ● Top<br>◎ Bot   | p L <b>33</b>     | )<br>Dpen         | Co                                       | n File                           | Save                       | X                                     | elete            |                          | Add                |                         |                    |                 |
| Edit          | NO.              | Nane              | Туре              | X  | Y                                | A                          | Va.                                   | 1                | No                       | - Dec              |                         |                    |                 |
| JAJ Setting   | 1<br>2<br>3<br>4 | 040               | 402<br>402<br>402 | 32, 327<br>26, 422<br>39, 864<br>38, 943 | 06.63<br>1.111<br>4.254<br>2.512 | 7 0.0<br>225<br>135<br>225 | 0 LQ<br>.00 40:<br>.00 40:<br>.00 40: | 2<br>2<br>2<br>2 | 505<br>502<br>502<br>502 | Copy               |                         |                    |                 |
| 🕵 Admin       | 5<br>6<br>7      | 040               | 402<br>402<br>402 | 38, 533<br>3, 262<br>28, 314             | 6.556<br>0.010<br>2.983          | 135<br>0.0<br>225          | .00 40:<br>0 40:<br>.00 40:           | 2<br>2<br>2      | 502<br>502<br>502        | Paste<br>Merge PCB |                         | 3                  |                 |
| Exit          | 8<br>9<br>10     | 040<br>040<br>040 | 402<br>402<br>402 | 36.871<br>37.842<br>39.133               | 3.023<br>8.729<br>12.66          | 315<br>45.<br>3 315        | .00 40<br>00 40<br>.00 40             | 2<br>2<br>2      | 502<br>502<br>502        | A Optinize         |                         |                    |                 |
|               | 11<br>12<br>13   | 040               | 402<br>402<br>402 | 5.895<br>34.559<br>38.243                | 0.010                            | 0.0<br>0 270<br>1 45.      | 0 40:<br>.00 40:<br>00 40:            | 2<br>2<br>2      | 502<br>502<br>502        | ·                  | Preview camera 🔲 Statj  | .c                 |                 |
| <b>D</b> RIN  | No.              | Value             |                   | Туре                                     | No 1                             | e Sum                      | ID                                    | FeedT            | уре                      | Next               | PCB Camer 👻 Dynam       | nic <b>W</b> 200m  | Capture         |
| PAUSE         |                  |                   |                   |  |                                  |                            |                                       |                  |                          |                    | Line Color              |                    |                 |
|               |                  |                   |                   |  |                                  |                            |                                       |                  |                          | SMD Analysi        | 🖾 Auto Loadin:          |                    |                 |
| STOP          |                  |                   |                   |  |                                  |                            |                                       |                  |                          | Feeder Dist        |                         |                    |                 |
| STEP          |                  |                   |                   |  |                                  |                            |                                       |                  |                          | Data Base          |                         |                    |                 |
|               |                  |                   |                   |  |                                  |                            |                                       |                  |                          |                    | Work message            |                    |                 |
|               |                  |                   |                   |  |                                  |                            |                                       |                  |                          |                    | Now PCB:1 No. 0 Complet | ed PCB:0 Element:0 |                 |
| Reset         | $\oplus$         |                   | DX:2              | 269.754 DY                               | :-548.29                         | 8                          | X 26                                  | 9.75             | Y −54                    | 8.2 Z 0            | File:flyerPC.H9         |                    | 2019-11-13 16:1 |

Fig.4-12 Import File

3. **Import:** Select "Edit - File" to enter the file editing interface, click "Open File" to find the CSV coordinate file converted from the PCB design file, and import it into the placement software.

4.Compensation Angle Deviation: Click "Confirm File" to move the coordinate alignment component center (default upper right corner component) according to the system prompt to perform angle deviation compensation.

| · · · · · · · · · · · · · · · · · · · | O Bo   | p Layer<br>ttom La;  | De Opes  | Con  | File  | Save   | Delet  | 0  | • | Add                                |                                      |                                  |           |      |       |
|---------------------------------------|--|--|--|--|---|--|--|--|---|------------------------------------|--------------------------------------|----------------------------------|-----------|------|-------|
| Bdit<br>Setting<br>Admin<br>Exit      | NO.<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11 | Name<br>IC5<br>040<br>040<br>040<br>040<br>040<br>040<br>040<br>040<br>040 | Type           LoFP100           402 | X<br>32, 327<br>26, 422<br>39, 864<br>38, 943<br>38, 553<br>3, 262<br>28, 314<br>36, 871<br>37, 842<br>39, 133<br>5, 895 | Y<br>66, 637<br>1, 111<br>4, 254<br>2, 512<br>6, 556<br>0, 010<br>2, 983<br>3, 023<br>8, 729<br>12, 663<br>0, 010 | λ<br>0,00<br>225,00<br>135,00<br>226,00<br>135,00<br>FlyerSMTLi<br>Please Lo | Val<br>LQEP100<br>402<br>402<br>402<br>402<br>402<br>402<br>402<br>4 | No<br>505<br>502<br>502<br>502<br>502<br>502<br>502<br>502<br>502<br>502 |   | Dec<br>Copy<br>Paste<br>Merge PCB  |                                      |                                  |           | m1   |       |
| RUN<br>PAUSE                          | 12<br>13<br><br>No.  | 040<br>040<br>Value  | 402  | 34,559<br>38,243<br>Туре   | -0.220<br>10.931<br>No Fe.  |  | 2 🖸  | 确定   |   | Next<br>SHD Analysi<br>Feeder Dist | Preview ca<br>PCB Camer<br>Line Colo | mera Stat<br>• ØDyna<br>r<br>din | ic<br>mic | Zoom | Capti |

Fig.4-13 Confirm File

|                                       | I   | CODE:   | CImage STOP                           |
|---------------------------------------|---|---|---------------------------------------|
| FlyerSHLiV2.0                         | Save  |   |                                       |
| Edit NO. Name Type X Y A Val No       | Dec   | L   |                                       |
| coordinates                           | Copy  |   | 🗢 ml 🚽 👘                              |
| Setting 3 0 X 302.081 Y -481.661      |   |   |                                       |
| Admin 6 0 A 0.0 X0.000 Y0.000         | Paste   |   |                                       |
|                                       | Content of the second sec | Preview camera Static<br>PC Camera Static<br>PCB Camera V Dynanic<br>Line Color | <b>Center to</b><br><b>auf Center</b> |
|                                       |   | Work message  |                                       |
|                                       |   | Now PCB:1 No.0 Completed P  | CB:0 Element:0                        |
|                                       | 0.0.7.0   | This time use:0Sec  |                                       |
| UX:269.754 DY:-548.298 X 269.75 Y -54 | 8.2 2 0   | File:flyerPC.H9   | 2019-11-13 16:12                      |

Fig.4-14 Confirm Coordinate

|                |  |  | ECODE :   | C Image STOPSTOP |
|----------------|--|--|---|------------------|
| FlyerSMTLiV2.0 | PCB ESV File   | ()Feeder Optimizatio   |   |                  |
| Product        | © Top Layer<br>© Botton La; Open Con File  | Save 🗙 Delete 🔶 Add  |   |                  |
| Edit           | NO. Name Type X Y  | A Val No   |   |                  |
| Setting        | 1         TC5         LQFP100         32.327         66.637           2         040         402         26.422         1.111           3         040         402         39.864         4.254           4         040         402         38.943         2.512   | 0.00 LQFP100 505<br>225.00 402 502<br>135.00 402 502<br>225.00 402 502 |   |                  |
| Admin          | 5 040 402 38.533 6.556<br>6 040 402 3.262 0.010<br>7 040 402 3.263 0.010   | 135.00 402 502   |   |                  |
| <b>K</b> Exit  | 1         000         000         25.018         2.035           8         040         402         35.671         3.023           8         040         402         31.642         8.726           10         040         402         31.642         8.726           11         040         402         5.885         0.010           12         040         402         34.589         -0.220 | PCB水平備差0.000000°   |   |                  |
| TUN            | 13 040 402 38.243 10.931<br>No. Value Type No Fe   | 确定 L   | Preview camera 🔲 Static<br>PCB Camer 🔹 🗹 Dynamic                  | Capture Capture  |
| PAUSE          | System Applies   | Componentie  | Line Color  |                  |
|                | System Applies   | Compensation sub Analysi   | 🗏 Auto Loadinį  |                  |
| STOPISTOP      | According to An  | gle Offset Breeder Dist  |   |                  |
| STEP           |  | Data Base  |   |                  |
|                |  |  | Work message<br>Now PCB:1 No.0 Completed PC<br>This time use:0Sec | B:0 Element:0    |
| Wrieset        | DX:269.754 DY:-548.298   | X 269.75 Y -548.2 Z 0  | File:flyerPC.H9   | 2019-11-13 16:13 |

! Attention:

There is a gap between the guide rail and the PCB. After the board is loaded, the PCB angle cannot be guaranteed to be completely correct. Therefore, the angle deviation compensation operation must be performed after importing the CSV coordinate file. Otherwise, the position may be offset when mounting.

Fig.4-15 Compensation Angle





4. Component analysis: Click the "Analyze Components" to analyze the file data and display the data in the file list.

According to the component package setting, the model of the mounting nozzle (refer to the nozzle type corresponding to the package)



Fig.4-17 Nozzle Edit

According to the feeder model corresponding to the component package setting, the corresponding feeder model identification method is as shown below.



Fig.4-20 Feeder Model



Fig.4-21 Material Station Allocation

| Top Layer       Open   |              | PCB                 | CSV Fil | e 🚺     | lark   | (     | Feede     | er 🎝 Opt      | timizatio | Save          |   |                   |  |
|---|--------------|---------------------|---------|---------|--------|-------|-----------|---------------|-----------|---------------|---|-------------------|--|
| No.       No.       Y       A       Val.       No       Previou         1       100   | ● To<br>○ Bo | p Layer<br>tton La; | Den 0   | Cor     | File   | Sav   | e 🔰       | Delete        |           | Add           |   |                   |  |
| No.       USE   | NO.          | Name                | Туре    | x       | Y      |       | A         | Val           | No        | Dec           |   |                   | العالف العالف  |
| 000       000   | 1            | IC5                 | LQFP100 | 32.327  | 66.63  | 7     | 0.00      | LQFP100       | 505       |               |   |                   |  |
| 000         | 2            | 848                 | 402     | 26.422  | 1,111  |       | 225.00    | 402           | 502       | Copy          |   |                   | MT   |
| •••••••••••••••••••••••••••••   | 3            | 040                 | 402     | 39,864  | 4.254  |       | 135.00    | 402           | 502       |               | 1 A 1                                   |                   |  |
| ■ 000   | 4            | 040                 | 402     | 38, 943 | 1      |       |           |               | -         | Paste         | Section 1                               | Minut.            |  |
| • 000   | 5            | 040                 | 402     | 38.533  | 清将使用   | 用量少的  | 吸嗎往1#,    | 6#两边缘安装       | -X-       |               |   | 12 - 51           |  |
| Rolling   | 6            | 040                 | 402     | 3.262   |        |       |           |               | _         |               | The State Fight                         | and the second    | and the second |
| William       Water Strate       Freedryne       Image Strate       Image Strate       Image Strate       Freedryne       Image Strate       Freedryne       Image Strate       Image Strate       Image Strate       Image Strate       Freedryne       Image Strate       Ima  | 1            | 040                 | 402     | 28, 314 |        |       |           |               |           | esw Merge FUB | Sec.                                    | 1 DECK AND STR    |  |
| Image: State of the state  | 8            | 840                 | 402     | 36, 871 | 出现的    | 明明暗型。 | S:NULL,50 | 02,503,504,50 | 15,       |               | CARACTER AND                            | THE REAL PROPERTY | A SHE REAL SHE SHE   |
| No.         Type         No.::         No:::         No:::         No:::         No:::         No:::         No:::         No:::         No:::         No:::         No:::<   | 9            | 040                 | 402     | 37.842  |        |       |           |               |           | A Optimize    |   | a reaction to be  | の正常ないの人で   |
| No.         Value         Type         North         Predict         Sum         ID         Predict         Predict         Previow camera         Static           No.         Value         Type         North         Predict         Static         Previow camera         Static           No.         Value         Type         North         Predict         Static         Previow camera         Static           2         402         402         50         2         Previow         Previow camera         Static           4         605         603         603         603         74         15         Previow         Previow <td< td=""><td>10</td><td>040</td><td>402</td><td>39.133</td><td></td><td></td><td></td><td></td><td></td><td></td><td>10 C 10 C</td><td></td><td>and the second second</td></td<>   | 10           | 040                 | 402     | 39.133  |        |       |           |               |           |               | 10 C |                   | and the second second  |
| No.         Use         Dype         No.         Use         Preview         Call         ID         Preview         Preview         Call         Preview         Preview         Call         Preview  | 10           | 040                 | 402     | 24 550  |        |       |           | 28            | *         |               |   | a carte a contra  | Call State State State Law   |
| No.         Value         Type         Nutl.         Peeder         Sun.         ID         Peedfrye         Sun.         ID         Sun.  | 13           | 040                 | 402     | 38, 243 |        |       |           |               | ~         |               | Preview comerce                         | m carat :         |  |
| No.       Value       Type       North       Freedrys       Decemposition         1       201       201       NULL       78       50       2       2       PD-0000         2       402       602       600       603       603       604       78       12       4       1       PD-0000       300       Analyzi         5       ML34       ML34       564       78       12       6       PD-10000       9       200       78       12       6       PD-10000       PD-0000       Auto Loadini       Auto Loadini       Auto Loadini       PD-0000       PD-00   |              |                     |         |         |        | _     | _         | _             |           |               | non a                                   | L Static          | QQZoom f   |
| 1 201 201 201 WILL 7* 50 2 F0-800<br>2 402 502 7* 144 45 F0-900<br>4 805 603 603 603 603 7* 15 F0-900<br>5 ML124 ML124 504 7* 12 6 F0-900<br>5 ML124 505 201-23 501 7* 12 6 F0-900<br>5 ML124 505 201-23 501 7* 12 10 F0-1200<br>5 ML124 501 201-23 501 7* 12 10 F0-1200<br>9 00F32 00F32 505 134 2 5 F0-900<br>9 00F32 00F32 505 134 2 5 F0-900<br>9 00F32 00F32 505 134 2 5 F0-900<br>134 5 F0-900<br>134 5 F0-900<br>134 5 F0-900<br>134 5 F0-900<br>1 | No.          | Value               | Type    | Nozzle  | Feeder | Sum   | ID        | FeedType      | -         | Next          | PUB Camer •                             | 🗹 Dynamic         |  |
| 2 402 402 502 114 48 1 FP-080 1 500 503 603 603 603 603 603 603 603 603 603 6   | 1            | 201                 | 201     | NULL    | ?#     | 50    | 2         | FD-8MM        |           |               | 11                                      |                   |  |
| 3 603 603 603 77 18 4 10 - 2000<br>5 ML124 ML124 504 77 12 6 FP-080<br>5 S01-23 S01-23 S01 77 12 6 FP-1200<br>5 S01-23 S01-23 S01 77 12 1 FP-1200<br>5 S014 S01-23 S014 77 12 6 FP-1200<br>9 S014 S01-23 S014 77 12 7 10 FP-1200<br>9 S014 S01-23 S014 S014 77 12 7 10 FP-1200<br>9 S014 S01-23 S014 S014 77 12 7 10 FP-1200<br>9 S014 S01-23 S014 S014 77 12 7 10 FP-1200<br>9 S014 S01-23 S014 S014 77 12 7 10 FP-1200<br>9 S014 S01-23 S014 S014 77 12 7 10 FP-1200<br>9 S014 S01-23 S014 S014 77 12 7 10 FP-1200<br>9 S014 S014 S014 S014 70 FP-1200<br>9 S014 S014 S014 S014 S014 S014 S014 S014  | 2            | 402                 | 402     | 502     | 14#    | 48    | 1         | FD-8MM        | -         |               | Line Color                              |                   |  |
| 4 8054 805 805 905 803 97 818 5 970-880<br>5 8054 805 1 123 805 97 87 812 120 120 120 120 120 120 120 120 120 1   | 3            | 603                 | 603     | 503     | ?#     | 28    | 4         | FD-8MM        |           | SWD Analysi   | _                                       |                   |  |
| b       ML124       ML124       ML124       ML124       ML124       ML124       DIA   | 4            | 802                 | 805     | 603     | 24     | 18    | 5         | FD-8MM        |           |               | 🗆 Auto Loadinį                          |                   |  |
| 0       301-23  | 6            | MLL34               | MLL.34  | 504     | 78     | 12    | 8         | FD-12MM       |           | 0             |   |                   |  |
| ecommended Feeder Installation<br>Work message<br>Now PCB:1 No. 0 Completed PCB:0 Element:0<br>This time use:0Sec   | 6            | SUT-23              | 507-23  | 503     | 78     | 12    | 11        | FD-12MH       |           | Feeder Dist   |   |                   |  |
| Commended Feeder Installation     Work message     Now PCB:1 No. 0 Completed PCB:0 Element:0     This time use:0Sec   | 6            | 208                 | 208     | NULL    | 18     | 4     | 10        | ED SHOT       |           | 6             |   |                   |  |
| ecommended Feeder Installation<br>Work message Now PCB:1 No.0 Completed PCB:0 Element:0 This time use:0Sec  | 1°           | 00020               | 0019    | NULL    | 120    | 4     | 9         | ED-SHI        |           | Data Base     |   |                   |  |
| Work message<br>Work message<br>Now FCB:1 No. 0 Completed FCB:0 Element:0<br>This time use:0Sec   | -            | ALL DE              | grr Jz  | 000     | 10#    | -     | 0         | PD-0808       |           | 20            |   |                   |  |
| Commended Feeder Installation     Now PCB:1 No. 0 Completed PCB:0 Element:0     This time use:0Sec     This time use:0Sec   |              |                     |         |         | -      |       |           | <b>.</b> .    |           |               | Work message                            |                   |  |
| The state use to be stated by the state of t  |              | om                  | men     | dec     | He     | 60    | er        | Inst          | alla      | tion          | Now D'B 1 No.                           | Completed P       | CB-0 Element-0   |
| This time use:0Sec  | ec           |                     | IIIUII  | ulu     | T.C    | u     |           | 11131         | ana       | tion .        | NUW PUD:1 NO.                           | o compileted P    | CD:0 Diement:0   |
| DV 260 754 DV -549 309 V 260 75 V -549 2 70   | lec          | ~                   |         |         |        |       |           |               |           |               |   |                   |  |
|   | ec           |                     |         |         |        |       |           |               |           |               | This time use                           | :0Sec             |  |

Fig.4-22 Location Recommendation

- 6. Material Station Allocation: Click the "feeder distribution" to provide 3 important data based on the contents of the file.
- A. Synchronize the component parameters to the feeder settings.
- B. Recommend the best feeder installation location.
- C. Mentioned which types of nozzles are used.

| t | • Top  | Layer<br>tom La; | Den     | Con          | File   | Sa  | ve      | Delete     |     | Add           |  |  |
|---|--------|------------------|---------|--------------|--------|-----|---------|------------|-----|---------------|--|--|
| 1 | 10.    | Nane             | Туре    | X            | Y      |     | A       | Val No     | 🔺   | Dec           |  |  |
|   |        | IC5              | LQFP100 | 32, 327      | 66.63  | 7   | 0.00    | LQFP100 50 | 05  |               |  |  |
|   | 2<br>3 | 040              | 402     | 26,422       | 1.111  | (   | 225 III |            | 12  | Copy          |  | The second secon |
|   | 1      | 040              | 402     | 38.943       | 2.512  |     | FiyerSM | 10 ( 10 )  | 02  | Con           |  |  |
|   | 5      | 040              | 402     | 38.533       | 6.556  |     |         | 50         | 32  | Paste         |  |  |
|   | 6      | 040              | 402     | 3.262        | 0.010  |     | OK      | 7          | 02  | Contract DCB  | The second second                        | and a state of the |
|   | (<br>2 | 040              | 402     | 28, 314      | 2,983  |     |         | <b>∠</b>   | 32  | est nerge PCD | TOTAL NOTICE                             | STATUS AND   |
|   | 9      | 040              | 402     | 37.842       | 8.729  |     |         | 50         | 32  |               | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 |  |
|   | 10     | 040              | 402     | 39.133       | 12.66  | 3   |         | 确定 50      | 32  | Optimize      | 11 | and the state of the state of the  |
|   | 11     | 040              | 402     | 5.895        | 0.010  |     | · · · · |            | 02  |               |  | Constant and the second  |
|   | 13     | 040              | 402     | 38, 243      | -0.22  | 1   | 45,00   | 402 50     | 12  |               | Preview camera                           |  |
|   |        |                  | 100     |              |        | -   | 0.00    | 100 00     | -   |               |  | atic QQZoom o  |
| 1 | lo.    | Value            | Type    | Nozzle       | Feeder | Sun | ID      | FeedType   | - Â | Next          | FCB Camer • 🕑 Dy                         | namic •••  |
|   | 1      | 201              | 201     | NULL         | 7#     | 50  | 2       | FD-8MM     |     | · · ·         | Line Color                               |  |
|   | 6<br>3 | 603              | 603     | 502          | 7#     | 28  | 4       | FD-8MM     |     |               |  |  |
| 4 | 4      | 805              | 805     | 503          | ?#     | 18  | 5       | FD-8MM     |     | SMD Analysi   | 🖾 Auto Loadin;                           |  |
| 1 | 5      | MLL34            | MLL34   | 504          | ?#     | 12  | 6       | FD-12MM    |     | 6             |  |  |
| 6 | 5<br>T | S07-23           | SOT-23  | 503          | 2#     | 12  | 11      | FD-12MM    |     | Feeder Dist   |  |  |
| 2 | 8      | S014             | S014    | NULL<br>NULL | 2#     | 4   | 9       | FD-8MM     |     | 0             |  |  |
| 9 | 9      | QFP32            | QFP32   | 505          | 13#    | 2   | 8       | FD-8MM     | -   | EC Data Base  |  |  |
| 1 |        |                  |         |              |        |     |         |            |     |               | Work message                             |  |
|   |        |                  |         |              |        |     |         |            |     |               | N DOD 4 N A C                            |  |
|   |        |                  |         |              |        |     |         |            |     |               |  |  |

#### Fig.4-23 Optimization

7. **Material Installation:** Install the component-mounted feeder onto the patch according to the station's recommended station installation serial number.

8.Optimization: Calculate the optimal placement order based on component picking and placement.

4-2-3 Create and edit CSV coordinate file online

| FlyerSNTLiV2.0 |       | PCB     | 2<br>csv File | ,         | Mark     |     | Feed | ler 10p  | timizatio | Save         | ECODE :                                  |                   |
|----------------|-------|---------|---------------|-----------|----------|-----|------|----------|-----------|--------------|--|-------------------|
| Product        | I Iop | Layer   | Open          | Con       | File     | Sav |      | Delete   |           | Add          |  |                   |
| Of Rdit        | NO.   | Name    | Туре          | X         | Y        | -   | 6    | Val      | No        | Dec          |  |                   |
|                | 1     | IC5     | LQFP100       | 32, 327   | 66.63    | 7   | 0.00 | LQFP100  | 505       | E Copy       |  |                   |
| Setting        |       |         |               |           |          |     |      |          |           |              |  |                   |
| Admin 🕺        |       |         |               |           |          |     |      |          |           | - Pratte     |  |                   |
|                |       |         |               |           |          |     |      |          |           | Merge PCB    | A CONTRACTOR                             |                   |
| L Strat        |       |         |               |           |          |     |      |          |           | A Optimize   |  |                   |
|                |       |         |               |           |          |     |      |          |           |              |  |                   |
| IDRUN          | No.   | Value   | Type          | Nozzle    | Feeder   | Sum | TD   | FeedType |           |              | PCB Camer • I Dynami                     | Capture Capture   |
|                |       | 1.00.00 |               |           |          |     |      |          |           | Next         | Line Color                               |                   |
| PAUSE          |       |         |               |           |          |     |      |          |           | SHD Analysi  | E Auto Londiny                           |                   |
| STOP           |       |         |               |           |          |     |      |          |           | Reeder Dist  | - Auto Loading                           |                   |
| STEP           |       |         |               |           |          |     |      |          |           | 9            |  |                   |
|                |       |         |               |           |          |     |      |          |           | EC Data Dase |  |                   |
|                |       |         |               |           |          |     |      |          |           |              | Work message<br>Now PCB:1 No 0 Completer | d PCB:0 Element:0 |
|                | •     | _       |               |           |          |     |      |          |           |              | This time use:0Sec                       |                   |
| (W)Reset       | •     |         | DX:26         | 9.754 DY: | -548. 29 | В   | X    | 269.75   | Y -54     | 8.2 Z 0      | File:flyerPC.H9                          | 2019-11-13 16:24  |

Fig.4-24 Create Coordinate

1.Add Coordinate: Select "Edit - File" to enter the file editing interface, click "Add" to add coordinates,

| Top<br>Bo | p Layer<br>ttom La: | <mark>) O</mark> pen | Cor        | File                           | Save                   | Delete | ]         | Add                                |
|-----------|---------------------|----------------------|------------|--------------------------------|------------------------|--------|-----------|------------------------------------|
| NO.       | Name                | Туре                 | K          | Y                              | A                      | Val    | No        | Dec                                |
| Ι         | mpo                 | ort                  | the 1<br>H | Namo<br>Packa<br>Valuo<br>Nozz | e<br>age<br>e<br>ile 1 | Гуре   | •         | Copy<br>Paste<br>Paste<br>Optimize |
| No.       | Value               |                      | Туре       | No                             | Fe                     |        | - la - la |                                    |
| 1         |                     |                      | BMP1       | NULL                           | 4#                     |        |           | E SMD Analys                       |
| 2         | S014                |                      | SO-14      | NULL                           | 5#                     |        |           |                                    |
| 3         | 402                 |                      | 402        | 500                            | 6#                     |        |           | Breeder Di:                        |
| 4         | LQFP100             |                      | LQFP-100   | 504                            | 7#                     |        |           | 6                                  |
| 5         | QFP44               |                      | LQFP-44    | NULL                           | 8#                     |        |           | _ Data Bas                         |
| 6         | QFP32               |                      | LQFP-32    | NULL                           | 9#                     |        |           | 1 50                               |

Fig.4-25 Edit Basic Parameters

2.Edit Basic Parameters: Import the component name, package, value, and placement nozzle model.



Fig.4-26 Coordinate Position

|   | ECODE:   |
|---|--|
| FlyerSMTLiV2.0  |  |
| Product Optoa Layer Open Con File Save Delete Optoa Layer Open V V 4 Val No   |  |
| Kait         Inc.         Inc. <th< td=""><td>E STATE STATE STATE</td></th<> | E STATE STATE STATE  |
| Admin         X         304.974         Y         -530.774           Admin         A         42.8         X-188.737         Y-16.763           Bxit         A         42.8         X-188.737         Y-16.763   | The orrection is   |
| CRUN     No.  | Preview camera Static<br>PCB Camer V Dynamic                                   |
| X- L X+<br>STOP / / K / Y- K Cancel Breder Dist   | - Auto Loading   |
|   | Work message<br>Now PCB:1 No.0 Completed PCB:0 Element:0<br>This time use:0Sec |
| DX:304.974         DY:-530.774         X         304.97         Y         -530.7         Z         0  | File:flyerPC.H9 2019-11-13 16:35   |

Fig.4-27 Edit Angle

3.Coordinate Edit: Double-click the "X or Y coordinates" to pop up the coordinate edit box and move the coordinates to the center of the PCB component pad.

Import the mounting angle or click "A+ A-" to adjust the angle, click "Confirm" to save the data and complete the coordinate edit. 4.Add other Component Coordinates: Refer to step 1, 2, and 3 above to add and edit all component mounting coordinates. 5.Order Optimization: After all the components have been edited, click "Optimize" to optimize placement order automatically, according to the coordinate position. Click "Save" in the lower right corner to save the latest CSV coordinate file.

6.Component Analysis; Station Allocation: Refer to 4-2-2, steps 3, 4, and 5 to complete component analysis and station assignment.

#### 4-3 Mark Edit

#### 4-3-1 Mark Position Method

Select "Edit - Mark" to enter the identification configuration, click "Mark1 - Edit" to pop up the coordinate editing box, move the coordinates to Mark1, and click "Confirm" to save Mark1.



Fig.4-28Edit Mark1



Click "Mark2 - Edit" to pop up the coordinate edit box, move the coordinates to Mark2, and click "Confirm" to save Mark2.

#### Fig4-29 Edit Mark2

#### ! Attention:

The PCB design is not made by Mark, and the points or components on the PCB can be arbitrarily positioned as identification points.

It is recommended that Mark1 be positioned in the lower left corner of the PCB. Mark2 is positioned in the upper right corner of the PCB.

#### **4-3-2 Mark Recognition Methods**

| ■ Manu  | One By One                                    | Using these two points<br>can accurately<br>calibrate the angle of<br>horizontal deviation |
|---|---|--|
| Parameter<br>Mark1 Update<br>X 0.000<br>Y 0.000<br>Edit | Mark2 Update<br>X 118.000<br>Y 96.000<br>Edit | PCB deviation angle<br>Deviati 0.000000 Get  |
|   |   |  |

#### Fig.4-30 Recognition Methods

1.**Manual Identification Method:** After the production starts, when the PCB position is offset, you need to manually adjust the coordinates to align the MARK1 and MARK2 centers for calibration.

2. Automatic Identification Method: After production is started, the system finds and calibrate MARK based on the set MARK image automatically.

3. One by one Identification: Multi-board is calibrated one by one.

#### ! Attention:

Mark Automatic Identification Offset caused by PCB placement offset, PCB edge cutting irregularity. Therefore, the recognition range should not be too large, otherwise the system will not be able to recognize. The recommended range does not exceed 1.5 times the outer diameter of Mark, and don't appear the similar points in the identification area.

#### 4-4 Feeder Edit

| Туре             | <b>Ribbon Feeder</b>  | Vibration Feeder(Tube) | IC Tray  |  |  |
|------------------|---|------------------------|--|--|--|
| Feeder No.       | FD001-FD064     TP065-TP100       First Component Center     First Component Center |                        | TP065-TP100  |  |  |
| Coordinate       |   |                        | The first center in the lower left corner of the tray  |  |  |
| Quantity         | Actual Amount   | Total (1)              | Total Number (Y direction line)  |  |  |
| Offset           | 0   | 0                      | Offset1: Position the center of the first component<br>in the lower right corner of the tray<br>Offset2: Position the center of the first component<br>in the upper right corner of the tray |  |  |
| Other Parameters | s Consistent Editing  |                        |  |  |  |

#### 4-4-1 Ribbon Feeder Edit

|                |  | 2   | ECODE:   | nage STOP        |
|----------------|--|---|--|------------------|
| FlyerSMTLiV2.0 | PCB CSY File   | Feeder Dytimizatio                            |  |                  |
| Rroduct        | 4.E able VON/OFF Swap ZDFD<br>No. 1 (> Heato                                       | Vision VOM/OFF HighSpeed -<br>Type Currency - |  |                  |
| Edit           | Value NULL (.)<br>Package NULL   | Size 8.86*8.39<br>Threshold 0 V Auto          | m2 0 +   |                  |
| Admin          | coordinate 10.015,-635.000 Update Angle 0.00                                       | 0   | \$0-8  |                  |
| Exit           | NozzleHeight 12.5<br>Thickness 0.0   | Distinguish +Take material                    |  |                  |
|                | Nozzle 002 • 002 •<br>Distance/Sum NULL Reload<br>Hole/Offset 0.000,0.000 Update   | ~   | Preview camera 🖾 Static                                  |                  |
|                | TakeSpeed         + 80         † 80           PasteSpeed         + 80         † 80 |   | PCB Camer • Dynamic                                      | Capture          |
| STOP STOP      | NO Val V N S<br>FD001 NULL / 1 80%   | Feeder Delay 60 Ms                            |  |                  |
| STEP           | FD003 3<br>FD004 5<br>FD005 FD006  | Location Sim feed CMD                         |  |                  |
|                |  |   | Work message<br>Now PCB:1 No.0 Completed PCB:0 Element:0 |                  |
| Reset          | DX:388.303 DY:-452.701   | X 388.30 Y -452.7 Z 0                         | This time use:OSec<br>File:flyerPC.H9                    | 2019-11-13 16:40 |

#### Fig.4-31 Open Switch

1.**Open Feeder:** Select "Edit—Feeder" to enter the feeder editing interface, click the feeder number in the feeder list, and click "Start" to open.

2.Parameters Setting: Import the value, package, angle, take-up height, component thickness and speed.

The number of trays and tray offsets are only for the IC tray, and the ribbon feeder doesn't need to be set.

#### ! Attention:

The feeder component values and packages must be consistent with the values and packages of the corresponding components in the CSV file (Including case letter).

When editing the file for the component location, if the synchronization date is selected to the feeder, the above date will be synchronized automatically, needn't edit it again.

3.Coordinate Correction: Click "Coordinate" to pop up the coordinate editing box, click "Position" to locate the system preset coordinate position, then click "Single Feed" to open the feeder cover, adjust the coordinates to align the center position of the component, and click "Confirm" to save the coordinates.

| FlyerSMTLiV2.0  |                             |
|---|-----------------------------|
| Product       Enable @OU/OFF Srep Yision @OU/OFF HighSpeet +         No. 7       7         Bdit       WILL         Value       MULL         Package       NULL         Contract of the package       NULL         No.00       Contract of the package         No.00       Contract o  |                             |
| Mainin         Rozzielsteight         12.5           Bizit         Nozzielsteight         12.5           Nozzielsteight         504         0.0           Bizitanow/Sma Wolfger         0.0000.0000           Photomer         0.0000.0000           Photomer         0.0000.0000           Photomer         0.0000.0000  | a Center to<br>Center       |
| DRUN     Russian State       DPAIRS     Russian State  | Capture                     |
| Image: Step         Image: Step | ement:0<br>2019-11-13 16:42 |



4. **Visual Registration:** Turn on the vision switch, select the recognition camera and component type, turn on the reclaim function, click "analog recognition" to start picking up the component to the camera for identification.

Then adjust the threshold slider to stabilize the shape of the locking component and complete the visual registration of the component.

|                                     |  |  |   |   |  | ECODE:  | C Image STOP      |
|-------------------------------------|--|--|---|---|--|---|-------------------|
| FlyerSMTLiV2.0                      | РСВ  | cs <b>v</b> File   | <b>N</b> ark  | Feeder 0  | otimizatio Save  | 0.00.0.000.00<br>x=0.07*4.0,W=34.0,H=18.0<br>sream512.0<br>FW=640 FH=480              |                   |
| Product<br>Bdit<br>Setting<br>Admin | Enable<br>No.<br>Value<br>Package<br>coordinate<br>Angle<br>NozzleHeight                 | V ON/OFF Swaj<br>7 <<br>NULL<br>NULL<br>114.655,-628.72<br>0.00<br>12.6    | > DFD<br>> +Goto<br><.><br>2 Dpdate                     | Vision VON/OFF<br>Type Currency<br>Size 0.01+0<br>Threshold 0 | HighSpeec -<br>- 3<br>2 Auto<br>2 Auto<br>uiah +Take - 4i al | Adjust Three  | shhold Until      |
| PAUSE                               | Thickness<br>Nozzle<br>Distance/Sum<br>Hole/Offset<br>TakeSpeed<br>PasteSpeed<br>NO. Val | 0,0<br>504 - 504<br>NULL<br>0,000,0,000<br>4 80 [ 1 80<br>4 80 [ 1 80<br>7 | <ul> <li>Reload</li> <li>Update</li> <li>N S</li> </ul> |   |  | Preview°cahera ♂Static<br>PCB Camer → □Dynamic<br>Line Color                          | Oonent<br>Capture |
| STOP<br>STEP                        | FD005<br>FD006<br>FD007 NULL<br>FD008<br>FD009<br>FD010                                  | 4  | 80%   | Lock  | Feeder Delay 60 M  | f ■ Auto Loadin<br>Work message<br>Now PCB:1 No.0 Completed PCB<br>This time use:0Sec | :0 Element:0      |
| Reset                               | _⊕ [   | DX:114.65  | 5 DY:-628.722   | X 114.65  | Y -628.7 Z O   | File:flyerPC.H9   | 2019-11-13 16:46  |

Fig.4-33 Visual Registration

#### ! Attention:

According to the identification type corresponding to the component package selection, select the general class if the type is unclear.5.Complete the edit of other feeders refer to the steps above.

5.Complete the rest feeder setting following previous instructions.

6.**Swap:** Point exchange pop-up dialog box enter the feeder serial number to be exchanged and press OK to realize the exchange function of two feeder parameters.



Fig.4-34 Swap Feeder

7.**Re-load**: Re-load is only used for the IC tray type component. After checking the reload, the total number of input components will pop up in the dialog box, and then press the OK button to enable the reload function. After the reload is enabled, the total number of components will be recounted and the total number will be re-loaded.



#### Fig.4-35 Reload

8. **CMD**:Feeder coordinates automatically assigned, click the CMD, select feeder array, fill in the first feeder number then moved to the corresponding feeder coordinates, then fill in the last feeder number also moved to the corresponding coordinates, then press the START button will be out of all of the feeder coordinates according to the array spacing equal.



Fig.4-37 Edit Coordinate

9. **ZDFD:**After ticked ZDFD, the corresponding feeder will no longer vent air. The original corresponding standard feeder can be used as the vibration feeder.

|   |  |   |             |  |  | ECODE:  | C Image STOP                        |
|---|--|---|-------------|--|--|---|-------------------------------------|
| FlyerSMTLiV2.0                              | РСВ  | csv File  | Mark        |  | otimizatio 🔀 Save  |   |                                     |
| Product<br>Bdit<br>Setting<br>Admin<br>Exit | Enable<br>No.<br>Value<br>Package<br>coordinate<br>Angle<br>NozzleHeight<br>Thickness<br>Nozzle                            | ♥ ON/OFF Swap<br>7 < 2<br>NULL<br>NULL<br>114.655,-628.72<br>0.00<br>12.5<br>0.0<br>NULL NULL<br>VILL | V 2DFD      | Vision VOK/OFF<br>Type Currency<br>Size 0.01+0<br>Threshold 0<br>Disting | HighSpeet •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |   |                                     |
| RUN<br>PAUSE<br>STOP<br>STEP                | Distance/Sum<br>Hole/Offset<br>TakeSpeed<br>PasteSpeed<br>FD005<br>FD006<br>FD007 NULL<br>FD008<br>FD009<br>FD009<br>FD009 | NULL<br>0.000,0.000<br>↓ 80 ↑ 80<br>↓ 80 ↑ 80<br>V<br>√   | N S<br>80%  | Look   | Feeder Delay 60 Ns   | Preview camera 『Static<br>PCB Camer - Dynamic<br>Line Color                       | <b>Q</b> Zoom <b>Capture</b>        |
| Reset                                       | •  | DX:114.658  | DY:-628.722 | X 114.65   | Y -628.7 Z 0   | Work message<br>Now PCB:1 No.0 Completed<br>This time use:0Sec<br>File:flyerPC.H9 | PCB:0 Element:0<br>2019-11-13 16:50 |

Fig.4-38 Activate Tube Feeder

**10.Precise:** Checking the precision identification will enable the high-definition camera's precise recognition function. The identified components will be corrected multiple times, and the placement accuracy will be higher but the efficiency will be reduced. It is suitable for high-precision applications that neglect efficiency.

|                |   |                                       | ECODE:   | C Image STOP II |
|----------------|---|---------------------------------------|--|-----------------|
| ₽lyerSMTLiV2.0 | PCB CSV File                                | Feeder Optimizatio Save               |  |                 |
| Product        | Enable VON/OFF Swap VIDFD<br>No. 7 <> +Goto | Vision VON/02 HighDefir - VLoopVision |  |                 |
| Edit           | Value NULL (.)                              | Size 0.01*0.01                        |  |                 |
|                | Package NULL                                | Threshold 0 2 Auto                    |  | -               |
| Sty Setting    | coordinate 114.655,-628.722 Update          |                                       |  |                 |
| 🕵 Admin        | Angle 0.00                                  | ntSource                              |  | A STATE AND     |
|                | NozzleHeight 12.5                           | Distinguish 🔤 +Take material          |  |                 |
| Exit           | Thickness 0.0                               |                                       |  |                 |
|                | Nozzle NOLL V NULL V                        |                                       | and the second |                 |
|                | Hole/Offset 0.000, 0.000 Update             |                                       | Preview camera 🛛 Static  |                 |
| <b>I</b> DRUN  | TakeSpeed + 80 1 80                         |                                       | PCB Camer 🔹 🖾 Dynamic  | Zoom Capture    |
|                | PasteSpeed 4 80 1 80                        |                                       | Line Color   |                 |
| PRUSE          | NO. Val V N S                               |                                       |  |                 |
| STOP STOP      | FD005<br>FD006                              | Look Peeder Delay SU MS               | - Auto Loadini   |                 |
|                | FD007 NULL / 80%                            | Location Sin feed                     |  |                 |
| STEP           | FD009                                       | + Hozzle III abandon                  |  |                 |
|                |   |                                       | Work message   |                 |
|                |   |                                       | Now PCB:1 No.0 Completed PCB:0 Ele   | ment:0          |
|                | <b>A</b>                                    |                                       | This time use:0Sec   |                 |
| WReset         | DX:114.655 DY:-628.                         | X 114.65 Y -628.7 Z 0                 | File:flyerPC.H9  | 2019-11-13 16:5 |
|                |   |                                       |  |                 |
|                |   | Fig.4-39 Precise Visual Recogn        | nization   |                 |

4-4-2 Edit IC Tray Offset



Fig.4-40 IC Tray Coordinate Editing Diagram

1.Coordinate Adjustment: Click "Coordinates" to move the coordinates to align the first component center in the lower left corner of the tray.



Fig.4-41 IC Coordinate





Fig.4-42 IC Number

3.Edit Tray Offset1: Click "Offset" to move the coordinates to the first component center in the lower right corner of the tray, and confirm the saved coordinates.

|                                     |  |                                  |                              | ECODE:   | 1 Image STOP  |
|-------------------------------------|--|----------------------------------|------------------------------|--|---|
|                                     | PCB Csv File   | coordinates                      |                              |  |   |
| FlyerSMTLiV2.0                      |  | X 434.001                        | ү -331.515                   | the second se  | And the second |
| Product<br>Bdit<br>Setting<br>Admin | Enable OK/OFF Swap<br>No. 65 <>><br>Value LQFP100<br>Pockage LQFP100<br>coordinate 434.001,-331.515<br>Angle 0.00<br>NozzleHeight 12.5 | A 0.0<br>Goto<br>1#Nozzle↓<br>T- | X0.000 TO.000                |  |   |
| 🔀 Bxit                              | Thickness 0.0  | ✓ ОК                             | r-                           | Move the co  | ordinates to  |
|                                     | Distance/Sun 1(1)  | ✓ Keload                         |                              | the cent   | er of the   |
|                                     | Hole/Off et 0.000,0.000<br>TakeSpeed 4 10 1 10<br>PasteSpeed 4 10 1 10   | Update                           |                              | Pres among of the Dynamic of the Post of the Dynamic of the Post of the Dynamic o | in the lower<br>of the tray.  |
| PROSE                               | NO. Val V M  | S                                | Feeder Delay                 | Auto Loadine   |   |
| STOP<br>STEP                        | FD006<br>FD007 NULL  | 80%                              | on Sin feed CTD<br>e abandon | board  |   |
|                                     |  |                                  |                              | Work message   |   |
|                                     |  |                                  |                              | Now PCB:1 No.0 Completed PCB:  | 0 Element:0   |
| Reset                               |  | nu ann man 11 1 1 1              | CE N COO E 7 0               | This time use:0Sec   |   |
|                                     | DX:114.655   | их:-628.722 X 114.               | 65 Y -628.7 Z 0              | File:flyerPC.H9  | 2019-11-13 16:54  |
|                                     |  |                                  |                              |  |   |

Fig.4-43 IC Offset

4.Edit Tray Offset: Then, move the coordinates to the top right component center in the upper right corner according to the system prompt, and confirm the saved coordinates to complete the offset editing.

|                |                |                         |               |                   |                          | ECODE:           | 1 Image STOP                            |
|----------------|----------------|-------------------------|---------------|-------------------|--------------------------|------------------|---|
| FlyerSMTLiV2.0 | РСВ            | csv File                | A Mark        | Feeder Dop        | timizatio                |                  |   |
|                |                |                         |               |                   |                          |                  | inimitian initiation                    |
| Product        | Enable         | ON/OFF Swap             | 📃 🗐 ZDFD      | Vision 🔤 ON/OFF   | HighDefir 💌 📃 LoopVision |                  |   |
|                | No.            | 65 <                    | 🔪 🕅 +Goto     | Type Currency     | ¥                        |                  |   |
| Edit           | Value          | LQFP100                 |               | Size 16.51*16     | 3. 38                    |                  |   |
| [] Satting     | Package        | LQFP100                 |               | Threshold 96      | Auto                     |                  |   |
| olosecting     | coordinate     | 434.001,-331.51         | 5 Update      |                   |                          |                  | at a to a |
| 🕵 Admin        | Angle          | 0.00                    |               | atSource          |                          |                  |   |
|                | NozzleHeight   | 12.5                    |               | FlyerSMTLi (16)   | +Take material           |                  |   |
| 🕺 Exit         | Thickness      | 0.0                     |               |                   |                          |                  |   |
|                | Nozzle         | 505 - 505 -             | -             | err_angle=0.00000 | o ^                      |                  |   |
|                | Distance/Sum   | 1 (1)                   | Reload        |                   | π.                       |                  |   |
|                | Hole/Offset    | 0.000, 0.000            | Update        | 确定                |                          | <b>Nove</b> t    | he coordinates to                       |
| KUN            | TakeSpeed      | <u>+ 10</u> <u>+ 10</u> |               |                   |                          | PCB Camer the    | Dynamic Contor of the                   |
| PAUSE          | PasteSpeed     | + 10 1 10               |               |                   |                          | Line Color       | center of the                           |
|                | NO. Val        | ۷                       | N S           | - Autor           | Feeder Delay 0 Mr        | compo            | nent in the upper                       |
| STOP STOP      | FD005<br>FD006 |                         |               | LOOK              |                          | right c          | orner of the trav                       |
|                | FD007 NULL     | 1                       | 80%           |                   | Sim feed CMD             | ingin c          | or ner or the tray.                     |
| STEP           | FD009          |                         |               | - Nozzle          | abandon 🧹                |                  |   |
|                | FD010          |                         |               |                   |                          | (III)            |   |
|                |                |                         |               |                   |                          | WORK message     | 1 . 1                                   |
|                |                |                         |               |                   |                          | NUW PCD:I NO.U C | mpreted FCD.0 Brement:0                 |
| Reset          |                | DI. 114 CE              | DW. 000 700   | V 114 GE          | V 699 7 7 0              | This time use:05 | ec.                                     |
|                | <b>V</b>       | DX:114.655              | > DY:-628.722 | X 114.65          | Y -028.7 Z U             | File:flyerPC.H9  | 2019-11-13 16:54                        |
|                |                |                         |               |                   |                          |                  |   |

Fig.4-44 IC Offset

# 4-5 Export Program

|                                       |                                      | _1                                      | ECODE:  | 1 Image STOP   |
|---------------------------------------|--------------------------------------|---|---|----------------|
| FlyerSWTLiV2.0                        | PCB ESS File Mark @Feed              | ler Dotimizati                          | 6 -   |                |
| Product                               | ✓ 另存为                                | ×                                       |   |                |
|                                       | ●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●● | • • • • · · · · · · · · · · · · · · · · |   |                |
| Edit                                  | 组织▼ 新建文件夹                            | III • 🔞                                 |   |                |
|                                       | >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>  | 修改日期 类型                                 |   |                |
| Setting                               | flyerPC.H9                           | 2019/11/13 16:07 H9 文件                  |   |                |
| of Admin                              |                                      |   |   | a series / the |
| A A A A A A A A A A A A A A A A A A A |                                      |   |   |                |
| Exit                                  | 2 文档                                 |   |   |                |
|                                       | ♪ 音乐                                 |   |   |                |
|                                       |                                      |   | and the second se |                |
|                                       |                                      |   | Preview camera 🗹 Static   |                |
| <b>IRUN</b>                           | ≦ 本地磁量 (C:)                          |   | PCB Camer - 🗖 Dynamic   | Zoom Capture   |
|                                       |                                      |   | Line Color  |                |
| PAUSE                                 |                                      |   | ·   |                |
| GOTSHOT                               | 保存类型(1): [工程文1年(^.H9)                |   | Auto Loading  |                |
| 3101                                  |                                      | <b>2</b> 保存(S) 取消                       |   |                |
| STEP                                  | C RBMXX1+X                           |   | ai -  |                |
|                                       | FD010                                |   | -   |                |
|                                       |                                      |   | Work message  |                |
|                                       |                                      |   | Now PCB:1 No. 0 Completed PCB:0 E1  | ement:0        |
|                                       | •                                    |   | This time use:0Sec  |                |
| Recet                                 |                                      |   |   |                |

Fig.4-45 Export Program

After editing the parameters, click "Save" in the upper right corner to export the H9 program file, or you can switch to "Production" mode to produce the placement.

### **Chapter 5 Production & Placement**

#### **Process:**

| No. | Process                   | Content   |
|-----|---------------------------|---|
| 1   | Boot                      | Turn on the Device and enter system(Detail in the boot ready) |
| 2   | <b>Origin Reset</b>       | Automatic   |
| 3   | PCB Load                  | Adjust the rail width and load the PCB                        |
| 4   | <b>Trans Mode Setting</b> | Set mode based on requirements(Automatic & Manual)            |
| 5   | Program Import            | Import the edited production placement program                |
| 6   | Material Load             | Load material based on file station allocation date           |
| 7   | Mount                     | Start mounting  |
| 8   | Ending                    | End the system and cut off the power                          |
| 9   | Daily Maintenance         | Daily maintenance as required                                 |

#### **! DANGER:**

Start running immediately after the device is turned on, to avoid injury! Never put your hands and head into the machine work area.

#### ! Attention:

To ensure the accuracy of the device data, the reset operation will be performed after each startup.

#### 5-1 How to import program



#### Fig.5-1 Imput Program

1、 Import program: Click "Production "→" Open", import the program that need to be processed.

| NO. | Name  | Туре | Х       | Y       | A      | Val    | Feeder | NOZZLE | State | * |
|-----|-------|------|---------|---------|--------|--------|--------|--------|-------|---|
| 228 | N0402 | 0402 | 88.200  | 19.635  | 270.00 | 1K0402 | 11#    | 1      |       |   |
| 229 | N0402 | 0402 | 88.200  | 17.035  | 270.00 | 1K0402 | 11#    | 2      |       |   |
| 230 | N0402 | 0402 | 88.200  | 14.435  | 270.00 | 1K0402 | 11#    | 3      |       |   |
| 231 | N0402 | 0402 | 88.200  | 11.835  | 270.00 | 1K0402 | 11#    | 1      |       |   |
| 232 | N0402 | 0402 | 88.200  | 9.235   | 270.00 | 1K0402 | 11#    | 2      |       |   |
| 233 | N0402 | 0402 | 88.200  | 6.635   | 270.00 | 1K0402 | 11#    | 3      |       |   |
| 234 | N0402 | 0402 | 90.135  | 20.270  | 360.00 | 1K0402 | 11#    | 1      |       |   |
| 235 | N0402 | 0402 | 92.749  | 19.521  | 315.00 | 1K0402 | 11#    | 2      |       |   |
| 236 | N0402 | 0402 | 91.849  | 17.719  | 45.00  | 1K0402 | 11#    | 3      |       |   |
| 237 | N0402 | 0402 | 91.449  | 15.519  | 45.00  | 1K0402 | 11#    | 1      |       |   |
| 238 | N0402 | 0402 | 92.151  | 13.419  | 135.00 | 1K0402 | 11#    | 2      |       |   |
| 239 | N0402 | 0402 | 93.451  | 11.119  | 135.00 | 1K0402 | 11#    | 3      |       |   |
| 240 | N0402 | 0402 | 92.551  | 9.321   | 225.00 | 1K0402 | 11#    | 1      |       |   |
| 241 | N0402 | 0402 | 90.449  | 9.921   | 315.00 | 1K0402 | 11#    | 2      |       |   |
| 242 | N0402 | 0402 | 52.635  | 12.570  | 360.00 | 1K0402 | 11#    | 3      |       |   |
| 243 | IC16  | S    | 90.214  | 68.374  | 45.00  | S014   | 42#    | 4      |       |   |
| 244 | IC17  | S    | 78.626  | 68.414  | 135.00 | S014   | 42#    | 4      |       | H |
| 245 | BMP1  | BMP1 | -50.100 | -76.200 | 0.00   |        | NULL   | NULL   |       | - |

Fig.5-2 Unmatched Status

| NO. | Name  | Туре | Х       | Y       | A      | Val    | Feeder | NOZZLE | State | * |
|-----|-------|------|---------|---------|--------|--------|--------|--------|-------|---|
| 228 | N0402 | 0402 | 88.200  | 19.635  | 270.00 | 1K0402 | NULL   | NULL   |       |   |
| 229 | N0402 | 0402 | 88.200  | 17.035  | 270.00 | 1K0402 | NULL   | NULL   |       |   |
| 230 | N0402 | 0402 | 88.200  | 14.435  | 270.00 | 1K0402 | NULL   | NULL   |       |   |
| 231 | N0402 | 0402 | 88.200  | 11.835  | 270.00 | 1K0402 | NULL   | NULL   |       |   |
| 232 | N0402 | 0402 | 88.200  | 9.235   | 270.00 | 1K0402 | NULL   | NULL   |       |   |
| 233 | N0402 | 0402 | 88.200  | 6.635   | 270.00 | 1K0402 | NULL   | NULL   |       |   |
| 234 | N0402 | 0402 | 90.135  | 20.270  | 360.00 | 1K0402 | NULL   | NULL   |       |   |
| 235 | N0402 | 0402 | 92.749  | 19.521  | 315.00 | 1K0402 | NULL   | NULL   |       |   |
| 236 | N0402 | 0402 | 91.849  | 17.719  | 45.00  | 1K0402 | NULL   | NULL   |       |   |
| 237 | N0402 | 0402 | 91.449  | 15.519  | 45.00  | 1K0402 | NULL   | NULL   |       |   |
| 238 | N0402 | 0402 | 92.151  | 13.419  | 135.00 | 1K0402 | NULL   | NULL   |       |   |
| 239 | N0402 | 0402 | 93.451  | 11.119  | 135.00 | 1K0402 | NULL   | NULL   |       |   |
| 240 | N0402 | 0402 | 92.551  | 9.321   | 225.00 | 1K0402 | NULL   | NULL   |       |   |
| 241 | N0402 | 0402 | 90.449  | 9.921   | 315.00 | 1K0402 | NULL   | NULL   |       |   |
| 242 | N0402 | 0402 | 52.635  | 12.570  | 360.00 | 1K0402 | NULL   | NULL   |       |   |
| 243 | IC16  | S    | 90.214  | 68.374  | 45.00  | S014   | NULL   | NULL   |       |   |
| 244 | IC17  | S    | 78.626  | 68.414  | 135.00 | S014   | NULL   | NULL   |       | E |
| 245 | BMP1  | BMP1 | -50.100 | -76.200 | 0.00   |        | NULL   | NULL   |       | - |

#### Fig.5-3 Matched Status

2. Match Parameter: Automatically generate a production list after importing the program and automatically match the corresponding feeder number and nozzle number

# 5-2 Production & Placement

| NO. | Step        | Content  |
|-----|-------------|--|
| 1   | Production  | Normal automatic production placement mode                         |
| 2   | Single step | Single step production placement mode                              |
| 3   | Jump        | Jump to any component as the initial placement position to produce |
| 4   | Trial mount | Non-suction production mode  |
| 5   | Feed        | Specified component or feeder feed production                      |
|     |             |  |

5-2-1 Automatic Production

1. Click "Start" to recognize and calibrate the mark offset.



Fig.5-4 Mark1 Calibration



Fig.5-5 Mark2 Calibration

- 2.After the Mark calibration, the reclaiming and visual correction (material with the calibration enabled by the feeder) are automatically performed and placed until the production of this program is completed.
- 3.Pause: If you need to stop adjusting settings and continue production, please click "Pause". After pausing the settings, click "Start" to continue production.
- 4.Stop: If you give up or interrupt the production no longer, please click "Stop"

Click "Start" after stopping will restart production from the beginning.

#### 5-2-2 Single Step Production

Single-step execution is mainly for machine debugging, program calibration, troubleshooting, etc., and each step can be clearly observed.

- 1. Click "Single Step" to recognize Mark1 and adjust the coordinate correction offset.
- 2. Click "single step" to recognize Mark2, adjust the coordinate correction offset,
  - 3. Step by step "single step", the system gradually withdraws material, visually corrects, and gradually installs until the production is completed.,
  - 4. Click "Pause" and then click "Start" to switch to normal production automatic placement until the production is completed.

#### 5-2-3 Jump Production

If operator quit during production process and want to continue to work or skip some components, jump production can be adopted to solve problem.

1. Click "Jump" and input PCB NO. and component NO.

2. Then refer to normal production and single step production to operate.

Jump to specified component location of PCB and take it as the starting placement position for this production automatically. 3.Production completed or click "Stop" to return to normal production mode.



Fig.5-5 Jump Production

#### ! Attention:

The placement mode must be adjusted to the sequential placement mode when using jump production, and the jump function cannot be used in the independent placement mode.

# 5-2-4 Trial Production

Trial Production is mainly for machine warm-up and operation training.

Click the "empty", the system will automatically start to complete the Mark calibration, and not pick up the component placement until the program is installed.

In the middle, you can click the "pause" and "stop" to terminate the operation.

#### 5-3 Feed Production

The system supports specified feeder and component feeding.

#### 5-3-1 Specified Feeder Feed

1.Import the production program, click "Match" system to match the parameters automatically.

2.Click the "Feeder" in the title to clear all feeder parameters.

3. Click "Start" to start the feed production.

| Name  | Туре  | Х   | Y  | A  | Val   | Feeder   | NOZZLE  | State  | *   |
|-------|---|---|--|--|---|--|---|--|---|
| N0402 | 0402  | 88.200  | 19.635   | 270.00   | 1K0402  | NULL   | 1   |  |   |
| N0402 | 0402  | 88.200  | 17.035   | 270.00   | 1K0402  | NULL   | 2   |  |   |
| N0402 | 0402  | 88.200  | 14.435   | 270.00   | 1K0402  | NULL   | 3   |  |   |
| N0402 | 0402  | 88.200  | 11.835   | 270.00   | 1K0402  | NULL   | 1   |  |   |
| N0402 | 0402  | 88.200  | 9.235  | 270.00   | 1K0402  | NULL   | 2   |  |   |
| N0402 | 0402  | 88.200  | 6.635  | 270.00   | 1K0402  | NULL   | 3   |  |   |
| N0402 | 0402  | 90.135  | 20.270   | 360.00   | 1K0402  | NULL   | 1   |  |   |
| N0402 | 0402  | 92.749  | 19.521   | 315.00   | 1K0402  | NULL   | 2   |  |   |
| N0402 | 0402  | 91.849  | 17.719   | 45.00  | 1K0402  | NULL   | 3   |  |   |
| N0402 | 0402  | 91.449  | 15.519   | 45.00  | 1K0402  | NULL   | 1   |  |   |
| N0402 | 0402  | 92.151  | 13.419   | 135.00   | 1K0402  | NULL   | 2   |  |   |
| N0402 | 0402  | 93.451  | 11.119   | 135.00   | 1K0402  | NULL   | 3   |  |   |
| N0402 | 0402  | 92.551  | 9.321  | 225.00   | 1K0402  | NULL   | 1   |  |   |
| N0402 | 0402  | 90.449  | 9.921  | 315.00   | 1K0402  | NULL   | 2   |  |   |
| N0402 | 0402  | 52.635  | 12.570   | 360.00   | 1K0402  | NULL   | 3   |  |   |
| IC16  | S   | 90.214  | 68.374   | 45.00  | S014  | NULL   | 4   |  |   |
| IC17  | S   | 78.626  | 68.414   | 135.00   | S014  | NULL   | 4   |  | E   |
| BMP1  | BMP1  | -50.100   | -76.200  | 0.00   |   | NULL   | NULL  |  | -   |
|       | Name           N0402           N0404 <td>Name         Type           N0402         0402           N0402         0402     <td>Name         Type         X           N0402         0402         88.200           N0402         0402         90.135           N0402         0402         92.749           N0402         0402         91.849           N0402         0402         91.449           N0402         0402         92.551           N0402         0402         92.551           N0402         0402         92.451           N0402         0402         92.449           N0402         0402         52.635           IC16         S         90.214           IC17         S         78.626           BMP1         -50.100</td><td>Name         Type         X         Υ           N0402         0402         88.200         19.635           N0402         0402         88.200         17.035           N0402         0402         88.200         14.435           N0402         0402         88.200         14.435           N0402         0402         88.200         14.435           N0402         0402         88.200         9.235           N0402         0402         88.200         9.235           N0402         0402         90.135         20.270           N0402         0402         92.749         19.521           N0402         0402         91.849         17.719           N0402         0402         92.151         13.419           N0402         0402         92.551         9.321           N0402         0402         92.551         9.321           N0402         0402         90.449         9.921           N0402         0402         90.449         9.921           N0402         0402         52.635         12.570           IC16         S         90.214         68.374           IC17         S.</td><td>Name         Type         X         Y         A           N0402         0402         88.200         19.635         270.00           N0402         0402         88.200         17.035         270.00           N0402         0402         88.200         17.035         270.00           N0402         0402         88.200         14.435         270.00           N0402         0402         88.200         11.835         270.00           N0402         0402         88.200         9.235         270.00           N0402         0402         88.200         6.635         270.00           N0402         0402         90.135         20.270         360.00           N0402         0402         92.749         19.521         315.00           N0402         0402         91.849         17.719         45.00           N0402         0402         91.449         15.519         45.00           N0402         0402         92.151         13.419         135.00           N0402         0402         92.551         9.321         225.00           N0402         0402         92.551         9.321         315.00           N0402</td><td>Name         Type         X         Y         A         Val           N0402         0402         88.200         19.635         270.00         1K0402           N0402         0402         88.200         17.035         270.00         1K0402           N0402         0402         88.200         17.035         270.00         1K0402           N0402         0402         88.200         14.435         270.00         1K0402           N0402         0402         88.200         9.235         270.00         1K0402           N0402         0402         88.200         9.235         270.00         1K0402           N0402         0402         88.200         6.635         270.00         1K0402           N0402         0402         90.135         20.270         360.00         1K0402           N0402         0402         91.359         17.719         45.00         1K0402           N0402         0402         91.449         15.519         45.00         1K0402           N0402         0402         92.151         13.419         135.00         1K0402           N0402         0402         92.551         9.321         25.00         1K0402</td><td>Name         Type         X         Y         A         Val         Feeder           N0402         0402         88.200         19.635         270.00         1K0402         NULL           N0402         0402         88.200         17.035         270.00         1K0402         NULL           N0402         0402         88.200         17.035         270.00         1K0402         NULL           N0402         0402         88.200         14.435         270.00         1K0402         NULL           N0402         0402         88.200         11.835         270.00         1K0402         NULL           N0402         0402         88.200         9.235         270.00         1K0402         NULL           N0402         0402         90.135         20.270         360.00         1K0402         NULL           N0402         0402         92.749         19.521         315.00         1K0402         NULL           N0402         0402         91.849         17.719         45.00         1K0402         NULL           N0402         0402         92.151         13.419         135.00         1K0402         NULL           N0402         0402</td><td>Name         Type         X         Y         A         Val         Feeder         NO2ZLE           N0402         0402         88.200         19.635         270.00         1K0402         NULL         1           N0402         0402         88.200         17.035         270.00         1K0402         NULL         2           N0402         0402         88.200         14.435         270.00         1K0402         NULL         2           N0402         0402         88.200         14.435         270.00         1K0402         NULL         3           N0402         0402         88.200         11.835         270.00         1K0402         NULL         1           N0402         0402         88.200         6.635         270.00         1K0402         NULL         2           N0402         0402         90.135         20.270         360.00         1K0402         NULL         1           N0402         0402         92.749         19.521         315.00         1K0402         NULL         2           N0402         0402         91.849         17.719         45.00         1K0402         NULL         1           N0402         0402</td><td>Name         Type         X         Y         A         Val         Feeder         NOZZLE         State           N0402         0402         88.200         19.635         270.00         1K0402         NULL         1            N0402         0402         88.200         17.035         270.00         1K0402         NULL         2            N0402         0402         88.200         14.435         270.00         1K0402         NULL         3            N0402         0402         88.200         11.835         270.00         1K0402         NULL         1            N0402         0402         88.200         9.235         270.00         1K0402         NULL         2            N0402         0402         90.135         20.270         360.00         1K0402         NULL         1            N0402         0402         91.849         17.719         45.00         1K0402         NULL         2            N0402         0402         92.151         13.419         135.00         1K0402         NULL         1            N0402         0402         92.551</td></td> | Name         Type           N0402         0402           N0402         0402 <td>Name         Type         X           N0402         0402         88.200           N0402         0402         90.135           N0402         0402         92.749           N0402         0402         91.849           N0402         0402         91.449           N0402         0402         92.551           N0402         0402         92.551           N0402         0402         92.451           N0402         0402         92.449           N0402         0402         52.635           IC16         S         90.214           IC17         S         78.626           BMP1         -50.100</td> <td>Name         Type         X         Υ           N0402         0402         88.200         19.635           N0402         0402         88.200         17.035           N0402         0402         88.200         14.435           N0402         0402         88.200         14.435           N0402         0402         88.200         14.435           N0402         0402         88.200         9.235           N0402         0402         88.200         9.235           N0402         0402         90.135         20.270           N0402         0402         92.749         19.521           N0402         0402         91.849         17.719           N0402         0402         92.151         13.419           N0402         0402         92.551         9.321           N0402         0402         92.551         9.321           N0402         0402         90.449         9.921           N0402         0402         90.449         9.921           N0402         0402         52.635         12.570           IC16         S         90.214         68.374           IC17         S.</td> <td>Name         Type         X         Y         A           N0402         0402         88.200         19.635         270.00           N0402         0402         88.200         17.035         270.00           N0402         0402         88.200         17.035         270.00           N0402         0402         88.200         14.435         270.00           N0402         0402         88.200         11.835         270.00           N0402         0402         88.200         9.235         270.00           N0402         0402         88.200         6.635         270.00           N0402         0402         90.135         20.270         360.00           N0402         0402         92.749         19.521         315.00           N0402         0402         91.849         17.719         45.00           N0402         0402         91.449         15.519         45.00           N0402         0402         92.151         13.419         135.00           N0402         0402         92.551         9.321         225.00           N0402         0402         92.551         9.321         315.00           N0402</td> <td>Name         Type         X         Y         A         Val           N0402         0402         88.200         19.635         270.00         1K0402           N0402         0402         88.200         17.035         270.00         1K0402           N0402         0402         88.200         17.035         270.00         1K0402           N0402         0402         88.200         14.435         270.00         1K0402           N0402         0402         88.200         9.235         270.00         1K0402           N0402         0402         88.200         9.235         270.00         1K0402           N0402         0402         88.200         6.635         270.00         1K0402           N0402         0402         90.135         20.270         360.00         1K0402           N0402         0402         91.359         17.719         45.00         1K0402           N0402         0402         91.449         15.519         45.00         1K0402           N0402         0402         92.151         13.419         135.00         1K0402           N0402         0402         92.551         9.321         25.00         1K0402</td> <td>Name         Type         X         Y         A         Val         Feeder           N0402         0402         88.200         19.635         270.00         1K0402         NULL           N0402         0402         88.200         17.035         270.00         1K0402         NULL           N0402         0402         88.200         17.035         270.00         1K0402         NULL           N0402         0402         88.200         14.435         270.00         1K0402         NULL           N0402         0402         88.200         11.835         270.00         1K0402         NULL           N0402         0402         88.200         9.235         270.00         1K0402         NULL           N0402         0402         90.135         20.270         360.00         1K0402         NULL           N0402         0402         92.749         19.521         315.00         1K0402         NULL           N0402         0402         91.849         17.719         45.00         1K0402         NULL           N0402         0402         92.151         13.419         135.00         1K0402         NULL           N0402         0402</td> <td>Name         Type         X         Y         A         Val         Feeder         NO2ZLE           N0402         0402         88.200         19.635         270.00         1K0402         NULL         1           N0402         0402         88.200         17.035         270.00         1K0402         NULL         2           N0402         0402         88.200         14.435         270.00         1K0402         NULL         2           N0402         0402         88.200         14.435         270.00         1K0402         NULL         3           N0402         0402         88.200         11.835         270.00         1K0402         NULL         1           N0402         0402         88.200         6.635         270.00         1K0402         NULL         2           N0402         0402         90.135         20.270         360.00         1K0402         NULL         1           N0402         0402         92.749         19.521         315.00         1K0402         NULL         2           N0402         0402         91.849         17.719         45.00         1K0402         NULL         1           N0402         0402</td> <td>Name         Type         X         Y         A         Val         Feeder         NOZZLE         State           N0402         0402         88.200         19.635         270.00         1K0402         NULL         1            N0402         0402         88.200         17.035         270.00         1K0402         NULL         2            N0402         0402         88.200         14.435         270.00         1K0402         NULL         3            N0402         0402         88.200         11.835         270.00         1K0402         NULL         1            N0402         0402         88.200         9.235         270.00         1K0402         NULL         2            N0402         0402         90.135         20.270         360.00         1K0402         NULL         1            N0402         0402         91.849         17.719         45.00         1K0402         NULL         2            N0402         0402         92.151         13.419         135.00         1K0402         NULL         1            N0402         0402         92.551</td> | Name         Type         X           N0402         0402         88.200           N0402         0402         90.135           N0402         0402         92.749           N0402         0402         91.849           N0402         0402         91.449           N0402         0402         92.551           N0402         0402         92.551           N0402         0402         92.451           N0402         0402         92.449           N0402         0402         52.635           IC16         S         90.214           IC17         S         78.626           BMP1         -50.100 | Name         Type         X         Υ           N0402         0402         88.200         19.635           N0402         0402         88.200         17.035           N0402         0402         88.200         14.435           N0402         0402         88.200         14.435           N0402         0402         88.200         14.435           N0402         0402         88.200         9.235           N0402         0402         88.200         9.235           N0402         0402         90.135         20.270           N0402         0402         92.749         19.521           N0402         0402         91.849         17.719           N0402         0402         92.151         13.419           N0402         0402         92.551         9.321           N0402         0402         92.551         9.321           N0402         0402         90.449         9.921           N0402         0402         90.449         9.921           N0402         0402         52.635         12.570           IC16         S         90.214         68.374           IC17         S. | Name         Type         X         Y         A           N0402         0402         88.200         19.635         270.00           N0402         0402         88.200         17.035         270.00           N0402         0402         88.200         17.035         270.00           N0402         0402         88.200         14.435         270.00           N0402         0402         88.200         11.835         270.00           N0402         0402         88.200         9.235         270.00           N0402         0402         88.200         6.635         270.00           N0402         0402         90.135         20.270         360.00           N0402         0402         92.749         19.521         315.00           N0402         0402         91.849         17.719         45.00           N0402         0402         91.449         15.519         45.00           N0402         0402         92.151         13.419         135.00           N0402         0402         92.551         9.321         225.00           N0402         0402         92.551         9.321         315.00           N0402 | Name         Type         X         Y         A         Val           N0402         0402         88.200         19.635         270.00         1K0402           N0402         0402         88.200         17.035         270.00         1K0402           N0402         0402         88.200         17.035         270.00         1K0402           N0402         0402         88.200         14.435         270.00         1K0402           N0402         0402         88.200         9.235         270.00         1K0402           N0402         0402         88.200         9.235         270.00         1K0402           N0402         0402         88.200         6.635         270.00         1K0402           N0402         0402         90.135         20.270         360.00         1K0402           N0402         0402         91.359         17.719         45.00         1K0402           N0402         0402         91.449         15.519         45.00         1K0402           N0402         0402         92.151         13.419         135.00         1K0402           N0402         0402         92.551         9.321         25.00         1K0402 | Name         Type         X         Y         A         Val         Feeder           N0402         0402         88.200         19.635         270.00         1K0402         NULL           N0402         0402         88.200         17.035         270.00         1K0402         NULL           N0402         0402         88.200         17.035         270.00         1K0402         NULL           N0402         0402         88.200         14.435         270.00         1K0402         NULL           N0402         0402         88.200         11.835         270.00         1K0402         NULL           N0402         0402         88.200         9.235         270.00         1K0402         NULL           N0402         0402         90.135         20.270         360.00         1K0402         NULL           N0402         0402         92.749         19.521         315.00         1K0402         NULL           N0402         0402         91.849         17.719         45.00         1K0402         NULL           N0402         0402         92.151         13.419         135.00         1K0402         NULL           N0402         0402 | Name         Type         X         Y         A         Val         Feeder         NO2ZLE           N0402         0402         88.200         19.635         270.00         1K0402         NULL         1           N0402         0402         88.200         17.035         270.00         1K0402         NULL         2           N0402         0402         88.200         14.435         270.00         1K0402         NULL         2           N0402         0402         88.200         14.435         270.00         1K0402         NULL         3           N0402         0402         88.200         11.835         270.00         1K0402         NULL         1           N0402         0402         88.200         6.635         270.00         1K0402         NULL         2           N0402         0402         90.135         20.270         360.00         1K0402         NULL         1           N0402         0402         92.749         19.521         315.00         1K0402         NULL         2           N0402         0402         91.849         17.719         45.00         1K0402         NULL         1           N0402         0402 | Name         Type         X         Y         A         Val         Feeder         NOZZLE         State           N0402         0402         88.200         19.635         270.00         1K0402         NULL         1            N0402         0402         88.200         17.035         270.00         1K0402         NULL         2            N0402         0402         88.200         14.435         270.00         1K0402         NULL         3            N0402         0402         88.200         11.835         270.00         1K0402         NULL         1            N0402         0402         88.200         9.235         270.00         1K0402         NULL         2            N0402         0402         90.135         20.270         360.00         1K0402         NULL         1            N0402         0402         91.849         17.719         45.00         1K0402         NULL         2            N0402         0402         92.151         13.419         135.00         1K0402         NULL         1            N0402         0402         92.551 |

Fig.5-7 Clear Feeder Parameters

#### 5-3-2 Specified Component Feeding

1.Switch to "Mark Edit" mode and select manual identification.

2.Return to the production interface and import the production program,

Click "Match" to match the related program parameters.

3. Click "Start", enter the Mark point to recognition and calibration status

4. Then click "Status" in the title to set all components to the mounted status.

| NO. | Name  | Type | Х       | Y       | A      | Val    | Feeder | NOZZLE | State | ^ |
|-----|-------|------|---------|---------|--------|--------|--------|--------|-------|---|
| 228 | N0402 | 0402 | 88.200  | 19.635  | 270.00 | 1K0402 | 11#    | 1      | 1     |   |
| 229 | N0402 | 0402 | 88.200  | 17.035  | 270.00 | 1K0402 | 11#    | 2      | 1     |   |
| 230 | N0402 | 0402 | 88.200  | 14.435  | 270.00 | 1K0402 | 11#    | 3      | 1     |   |
| 231 | N0402 | 0402 | 88.200  | 11.835  | 270.00 | 1K0402 | 11#    | 1      | 1     |   |
| 232 | N0402 | 0402 | 88.200  | 9.235   | 270.00 | 1K0402 | 11#    | 2      | 1     |   |
| 233 | N0402 | 0402 | 88.200  | 6.635   | 270.00 | 1K0402 | 11#    | 3      | 1     |   |
| 234 | N0402 | 0402 | 90.135  | 20.270  | 360.00 | 1K0402 | 11#    | 1      | 1     |   |
| 235 | N0402 | 0402 | 92.749  | 19.521  | 315.00 | 1K0402 | 11#    | 2      | 1     |   |
| 236 | N0402 | 0402 | 91.849  | 17.719  | 45.00  | 1K0402 | 11#    | 3      | 1     |   |
| 237 | N0402 | 0402 | 91.449  | 15.519  | 45.00  | 1K0402 | 11#    | 1      | 2     |   |
| 238 | N0402 | 0402 | 92.151  | 13.419  | 135.00 | 1K0402 | 11#    | 2      | 1     |   |
| 239 | N0402 | 0402 | 93.451  | 11.119  | 135.00 | 1K0402 | 11#    | 3      | 1     |   |
| 240 | N0402 | 0402 | 92.551  | 9.321   | 225.00 | 1K0402 | 11#    | 1      | 1     |   |
| 241 | N0402 | 0402 | 90.449  | 9.921   | 315.00 | 1K0402 | 11#    | 2      | 1     |   |
| 242 | N0402 | 0402 | 52.635  | 12.570  | 360.00 | 1K0402 | 11#    | 3      | 1     |   |
| 243 | IC16  | S    | 90.214  | 68.374  | 45.00  | S014   | 42#    | 4      | 1     |   |
| 244 | IC17  | S    | 78.626  | 68.414  | 135.00 | S014   | 42#    | 4      | 1     | H |
| 245 | BMP1  | BMP1 | -50.100 | -76.200 | 0.00   |        | NULL   | NULL   | 1     | - |

Fig.5-9 Set the Placement Status

5.Select the component that needs to be replenished,

Click on the status bar of the component,

Set the component to be unmounted.

The system in which the status bar has been smashed is considered to be in the mounted state.

Placement is no longer performed in this production process;

The system with the status bar blanked is considered to be unmounted.

Only install the components of this part after starting the program.

| NO. | Name  | Type | Х       | Y       | A      | Val    | Feeder | NOZZLE | State |
|-----|-------|------|---------|---------|--------|--------|--------|--------|-------|
| 228 | N0402 | 0402 | 88.200  | 19.635  | 270.00 | 1K0402 | 11#    | 1      | 1     |
| 229 | N0402 | 0402 | 88.200  | 17.035  | 270.00 | 1K0402 | 11#    | 2      | 2     |
| 230 | N0402 | 0402 | 88.200  | 14.435  | 270.00 | 1K0402 | 11#    | 3      | 1     |
| 231 | N0402 | 0402 | 88.200  | 11.835  | 270.00 | 1K0402 | 11#    | 1      | 1     |
| 232 | N0402 | 0402 | 88.200  | 9.235   | 270.00 | 1K0402 | 11#    | 2      | 1     |
| 233 | N0402 | 0402 | 88.200  | 6.635   | 270.00 | 1K0402 | 11#    | 3      | d     |
| 234 | N0402 | 0402 | 90.135  | 20.270  | 360.00 | 1K0402 | 11#    | 1      |       |
| 235 | N0402 | 0402 | 92.749  | 19.521  | 315.00 | 1K0402 | 11#    | 2      |       |
| 236 | N0402 | 0402 | 91.849  | 17.719  | 45.00  | 1K0402 | 11#    | 3      |       |
| 237 | N0402 | 0402 | 91.449  | 15.519  | 45.00  | 1K0402 | 11#    | 1      |       |
| 238 | N0402 | 0402 | 92.151  | 13.419  | 135.00 | 1K0402 | 11#    | 2      |       |
| 239 | N0402 | 0402 | 93.451  | 11.119  | 135.00 | 1K0402 | 11#    | 3      |       |
| 240 | N0402 | 0402 | 92.551  | 9.321   | 225.00 | 1K0402 | 11#    | 1      | 2     |
| 241 | N0402 | 0402 | 90.449  | 9.921   | 315.00 | 1K0402 | 11#    | 2      | 1     |
| 242 | N0402 | 0402 | 52.635  | 12.570  | 360.00 | 1K0402 | 11#    | 3      | 1     |
| 243 | IC16  | S    | 90.214  | 68.374  | 45.00  | S014   | 42#    | 4      | 1     |
| 244 | IC17  | S    | 78.626  | 68.414  | 135.00 | S014   | 42#    | 4      | 1     |
| 245 | BMP1  | BMP1 | -50.100 | -76.200 | 0.00   |        | NULL   | NULL   | 1     |

Fig.5-10 Unmounted Status

6. Click "Start" to start the feeding production until all the feeding components of this program are mounted.

#### ! Attention:

The specified component feeding production is only applicable to the manual identification of Mark points. To enable automatic identification of Mark point identification, it must be switched to manual identification or converted to the specified feeder mode for feeding production.

#### 5-4 End & Turn off the Machine

- 1, Click "Exit" to exit the placement machine control system
- 2、 Click the Windows Start Menu—Turn off.
- $3_{\text{N}}$  Turn off the power switch on the right side of the main unit to cut off the power.

#### ! Attention:

Before turning off the power, be sure to turn off the computer first, otherwise it may cause the computer malfunction;

Please ensure that the program has been saved before exiting the system, otherwise it may cause the program lost.

**! DANGER:** 

Click "Start" switch and the machine will start production immediately;

To avoid body injury, do not put your hands in the machine during operation, and do not move your face and head close to the machine;

Be sure that there is no one using the machine before starting the machine;

Be sure that there is no objects installed in the machine, anything will prevent the machine from running (adjustment tools, etc.) before starting the machine.

#### **Chapter 6 Maintenance**

#### 6-1 Daily Maintenance

1.Check if the tip of the nozzle is worn or damaged, and there is no solder paste inside the nozzle that might stuck or blocked air pipe. It must be replaced or cleaned;

2. Check the PCB camera lens for dust or debris, and clean it with a soft cloth if necessary;

- 3. Check for any remaining components or debris on the feeder and clean if necessary;
- 4. Check the components of the camera lens with or without dirt, if necessary, clean with a soft cloth;
- 5. Check the workbench table for any debris and extra components, and clean it with a brush if necessary;
- 6. Check whether the pressure gauge of the equipment barometer is within a reasonable range (reference value 0.6 Mpa);
- 7. Check whether there is any water in the oil cup of the gas source treatment part and drain it;
- 8. Check and clean the throwing box and sort the useful materials;

9. Check the transfer guide rails and transfer with no debris, and clean with a soft cloth if necessary.

#### 6-2 Weekly Regular Maintenance

- 1. Check the X-axis screw for any particles or debris on it, and clean if necessary;
- 2. Check the X-axis guide grease for hardening and residue adhesion;
- 3. Check the Y-axis screw for any particles or debris, and clean if necessary;
- 4. Check the lubricating oil of the Y-axis guide rail for hardening and residue adhesion;
- 5. Check the air pneumatic joint for leaks and replace if necessary;
- 6. Check the air tube for aging or distortion, and replace if necessary;
- 7. Check the feeder board for any components or debris that fall into the air outlet and must be cleaned.

#### 6-3 Monthly Regular Maintenance

- 1. Check if the brightness of LED is sufficient. If it is not bright, replace the entire LED component;
- 2. Check the 4 sensors on the transfer mechanism and wipe them with a clean rag;
- 3. Check the Z-axis rotating motor shaft and the oil seal contact part for air leakage, and add a small amount of white grease;
- 4. Check the X-axis linear guide to remove dust and residue and apply new grease.
- 5. Check the X-axis ball screw to remove dust and residue and apply new grease.
- 6. Check the Y-axis linear guide to remove dust and residue and apply new grease.
- 7. Check the Y-axis ball screw to remove dust and residue and apply new grease.
- 8. Check the widened linear guide to remove dust and residue and apply new grease.
- 9. Check the Z-axis linear guide to remove dust and residue and apply new lubricant;
- 10. Check that the outer silicone ring of the nozzle holder is loose or slide upward to prevent the motor from rotating and replace if necessary;
- 11. Check whether there is any component inhalation in the filter of the vacuum generator assembly, clean and replace if necessary;

12. Check the fan filter for dust accumulation, remove the filter for cleaning, and replace if necessary.

#### **! DANGER:**

To prevent accidents from starting unexpectedly, please perform maintenance after turning off the power.

#### ! WARN:

Can not be blown with a wind gun, the air gun will blow dust and debris into the machine, attached to the guide rail, screw, lens, otherwise it will affect the normal operation of the machine.

#### ! Attention:

Do not use organic solvents to scrub the surface of the machine, as it will damage the surface of the machine.

#### 6-4 Nozzle Clean

1.Please use alcohol-contained ultrasonic cleaner to clean the alcohol in the nozzle with an air gun.

2. It takes about 5 minutes to clean by ultrasonic  $\$  .

3.For dirt that cannot be cleaned by an ultrasonic cleaner, please use a soft cloth soaked in alcohol to brush it.

4. After cleaned, apply grease to the nozzle slider to prevent the rust of nozzle inside.

#### ! Attention:

Do not use solvents other than alcohol (propanol, etc.). If a high-viscosity grease such as grease is used, the nozzle slider will not return smoothly.

# Chapter 7 Trouble Shooting

# 7-1 Throw

| Example       | Reason  | Measure  |  |
|---------------|---|--|--|
|               | 1. Brightness of the light source is not set properly | Check the brightness of the light source and reset   |  |
|               | 2. Improper brightness attenuation setting            | Check brightness decay and reset   |  |
| Chip Dropping | 3. Improper visual threshold setting                  | Check the visual threshold to reset the visual threshold and re-register the component image |  |
|               | 4. The photo filter time is too short                 | Increase the camera shooting delay time  |  |
|               | 5. Unacceptable suction                               | Check the nozzle concentricity and check the feeder coordinates                              |  |

# 7-2 Suction

| Example      | Reason                                 | Measure   |
|--------------|--|---|
|              | 1. The nozzle isn't high enough        | Reset Z-axis height   |
|              | 2. Feeder coordinates are not accurate | Recheck the position of the feeder coordinates                |
| Suction tomb | 3. Nozzle different suction            | Check and replace the nozzle                                  |
|              | 4. Reclaiming time is too short        | Increase the reclaiming time                                  |
|              | 5. Insufficient air pressure           | Increase air pressure   |
|              | 1. Nozzle doesn't reach component      | Reset Z-axis height   |
|              | 2. Solenoid valve damage               | Check and replace solenoid valve                              |
|              | 3. Vacuum generator damage             | Check replacement vacuum generator                            |
| Suck Nothing | 4. Nozzle blocked                      | Block the nozzle or replace the nozzle                        |
|              | 5. Nozzle mismatch                     | Replace the larger size nozzle,<br>then increase the negative |
|              | 6. Air circuit blockage or air leak    | Replace the trachea   |

# 7-3 X/Y axis

| Example    | Reason                                  | Measure   |
|------------|---|---|
| X/V avis   | 1. X.Y axis reach the limit switch      | Press reset to return to the origin and then move                               |
|            | 2. Z axis is not in the protected state | Press the reset switch to return to the origin and check if the Z axis is stuck |
| don't work | 3. Servo motor damage                   | Replace the servo motor   |
|            | 4. Servo motor disconnection            | Replace the motor lead cord   |
|            | 5. Servo drive damage                   | Replace the stepper drive   |

# 7-4 Placement

| Example              | Reason  | Measure  |
|----------------------|---|--|
|                      | 1. Solder paste is not sticky enough or over time | Replace the solder paste and reprint the PCB     |
|                      | 2. Z axis is too fast                             | Reduce Z axis mounting speed                     |
| Place Tomb           | 3. Solder paste printing shift                    | Readjust the position of printer                 |
|                      | 4. Z axis can't reach the PCB                     | Reset Z axis height distance from PCB            |
|                      | 5. Placement time is not enough                   | Increase placement retention time                |
|                      | 1. Reference point position is not right          | Relocate the reference datum point               |
| Overall placement    | 2. Paste deviation                                | Recalibrate the sticker                          |
| offset               | 3. PCB clamping is not flat                       | Recalibrate the mounting PCB position            |
|                      | 4. Mounting speed is too fast                     | Reduce mounting speed                            |
| Components Mounted   | 1. Suction is different                           | Check and replace the nozzle                     |
| Inaccurate           | 2. Feeder coordinates aren't inaccurate           | Recheck the position and reset feeder coordinate |
| Manuting Angle Emer  | 1. Rotate motor damage                            | Replace the rotating motor                       |
| Mounting Angle Error | 2. Nozzle Mismatch                                | Replace larger size nozzle                       |
|                      | 1. The head switch is off                         | Open the sticker switch                          |
| Sticker doesn't fit  | 2. Plywood placement is not in the mounted state  | Change to Not mount as placement status          |

# 7-5 MARK Point

| Example         | Reason                                   | Measure  |
|-----------------|--|--|
|                 | 1. Recognition range is too small        | Increase the recognition range                                   |
|                 | 2. Mark point image isn't updated        | Update Mark point image  |
| Can't catch the | 3. The light source is not bright enough | Adjust the brightness of the Mark point source                   |
| MARK point      | 4. Mark point features aren't obvious    | Re-find two points defined as Mark points                        |
|                 | 5. Mark point deviation is too large     | Transfer guide rail is too wide to adjust the width of the small |
|                 |  | guide rail.  |
|                 |  |  |

# 7-6 Power Supply

| Example  | Reason             | Measure  |
|----------|--------------------|--|
| No Power | 1. Fuse Damaged    | Check and replace the fuse   |
|          | 2. Poor connection | Check the tightening plug and check if there is a problem with<br>the power supply |

#### **Chapter 8 After Sales Service**

The warranty period of the machine is 12 months after the date of purchase. If non-artificial damage happens during the warranty period, we will repair it free of charge. If it's artificial damage or exceeds the warranty period, we will charge the appropriate maintenance cost and lifetime maintenance as appropriate.



Revision History

| Rev | Date    | Rev. Page | Content  |
|-----|---------|-----------|--|
| 1.0 | 2019.4  |           | First  |
| 1.1 | 2019.11 |           | <ol> <li>Add overall route optimization module</li> <li>Add PCB array consolidation</li> <li>Add feeder NO swap module</li> <li>Add tube feeder mode for every location</li> <li>Add IC tray auto reload function</li> <li>Add feeder auto loacting function with array</li> <li>Add cover open slowdown-or-stop function</li> <li>Add conveyor multiple choice</li> </ol> |

Specification, appearance, etc. are subject to change without notice!

The final interpretation of this operation manual belongs to the company!